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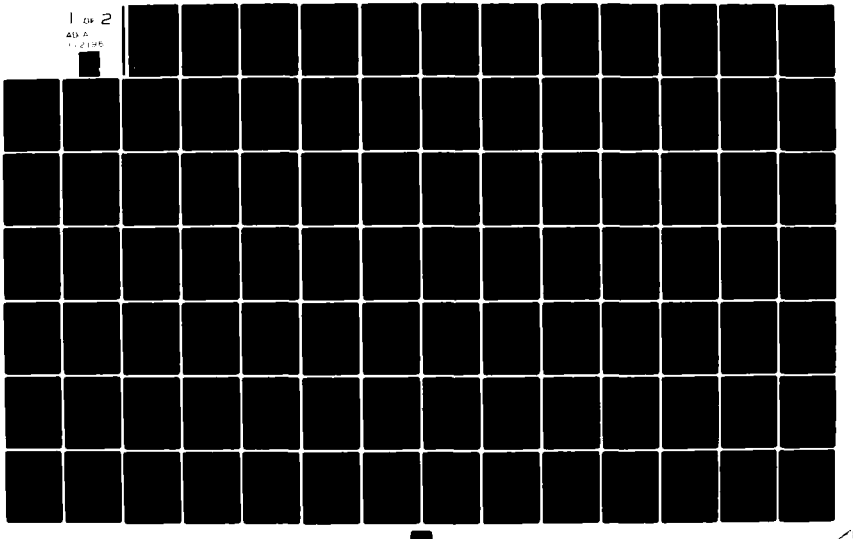

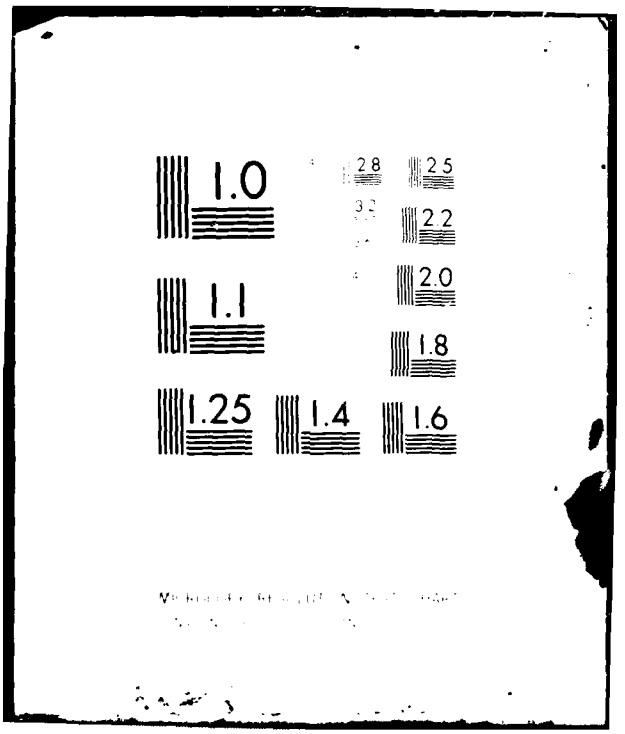
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AERONAUTICAL RESEARCH LABORATORIES

MELBOURNE, VICTORIA

STRUCTURES NOTE 479

BIBLIOGRAPHY OF AIRCRAFT GUST MEASUREMENTS IN AUSTRALIA AND OF SOME RELATED TOPICS

By

DOUGLAS J. SHERMAN ASSISTED BY DAVID MACLEAN

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SUMMARY

This bibliography covers measurements of aeronautical turbulence in the Australian region and Australian work on the response of aircraft to gusts. There is an abstract of each report and the reports are cross-referenced under 25 subject headings. Over 300 reports cover the period 1934 to 1981.

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16. ABSTRACT

This bibliography covers measurements of aeronautical turbulence in the Australian region and Australian work on the response of aircraft to gusts. There is an abstract of each report and the [illegible]s are cross-referenced under 25 subject headings. Over 300 reports [illegible] the period 1934 to 1981.

Preface

ARL has been asked by the RAAF to provide a model of the atmospheric gust environment encountered by Australian aircraft. As the first stage in this task a summary of the various reports relevant to the Australian environment has been prepared.#1 The bibliography is intended to be a comprehensive list of Australian work on the response of aircraft to gusts or of measurements of aeronautical turbulence or gusts which are applicable to the Australian region. There may be other reports relevant to the task which have not yet come to notice. The author will be grateful if anybody having knowledge of other work will bring it to his attention. There is also a rather limited coverage of work relevant to various turbulence generating mechanisms in Australia.

In form this bibliography is divided into three sections. The first section refers to the various works chronologically and gives a very brief summary of the work, with special reference to any actual measurements of the Australian gust environment. The second part of the bibliography is an alphabetical list of the authors whose works are summarised in the first section, and the third part of the bibliography is a cross-reference, listing reports dealing with each of several topics.

#1 Many of the reports have been gathered during previous work on this and related topics. A few have been brought to attention by one or other of a few people to whom an early draft of this bibliography was circulated for comment. Other reports have been discovered by searching the following data bases:

(a) Meteorological and Geoastrophysical Abstracts (70-79)
(b) Oceanic Abstracts (64-77)
(c) Environmental Periodicals Bibliography (74-79)
(d) Science Citation Index (74-79)
(e) National Technical Information Service (64-79)
(f) Conference Papers Index (73-79)
(g) Australian Science Index (76-79)
(h) Australian Public Affairs Information Service (78-79)
(i) Australian National bibliography (72-79)
(j) Australian Defence Scientific And Technical Information Service (?-79)

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1934 METEOROLOGICAL OFFICE. GREAT BRITAIN. |/K|
Singapore to Melbourne air route.
Aviation Meteorological Report No. 2. (London) April 1934.

The sections of this report which treat Australian data are II- Surabaya to Port Darwin, III- Port Darwin to Brisbane and IV- Brisbane to Melbourne. Textual material contains a general description of the climates of these sections. Meteorological tables are included for Port Darwin, Daly Waters, Burketown, Longreach, Brisbane, Bourke, Melbourne and Sydney. These list the mean monthly m.s.l. pressure, air temperature, relative humidity, cloud amount, precipitation amount, the number of days of precipitation, frost, fog, gale and thunder. The mean monthly percent wind speed and direction are given by wind roses for Sydney at the surface and the 1500, 3000 and 6000 foot levels. Other shorter tables are included in the text. These comprise table VII- mean monthly rainfall amounts for nine stations, table VIII- frequency of thunder (monthly) for eight stations, and percentage frequency of various ranges of visibility during the months of Sept. to April combined and May to August by month based on four years of observations at 0900 and 1500 hours.
Abstract from Creasi (1960b)

1938 TRELOAR, H.M., & NEWMAN, B.W. |/K|
Weather conditions affecting aviation over the Tasman Sea. Parts I & II.
Australia, Bureau of Meteorology Bulletin No. 24. Melb. 1938.

The text discusses maps, tables, and charts of Part I "Weather conditions from records of ships' logs and land observations" (periods 1924-1935) and Part II "Some adverse aviation weather conditions on the New South Wales coast". Elements treated in part I are thunderstorm distribution, fog frequency, occurrence of different cloud types, visibility, cloud levels and directions, monthly maps (1925-1935) by 5 deg. squares mostly over the Tasman Sea of mean percentage frequency of cloud directions and of weather conditions. Part II has a short text and consists mainly of tables. Tables are the following: 1. Diurnal incidence of fog at Sydney, Newcastle, Brisbane. 2. Monthly frequency of fog at NSW coastal stations. 3 & 4. Duration of fog at Sydney and Newcastle. 5. Frequency of visibility at Sydney and Newcastle. 6. Incidence of low cloud at Sydney and Brisbane.
See also Newman & McCann (1946)
Abstract from Creasi (1960b)

1938 TRELOAR, H.M., NEWMAN, B.W. & NEWELL, H.F. |/K|
Weather conditions affecting aviation over the Tasman Sea Part III.
Australia. Bureau of Meteorology Bulletin No. 25. Melb. 1938.

Part III consists of three sections "The effect of winds on *times of flight*", "Large increases of wind velocity with height", and "Wind velocities in the 5-kilometre level." Methods employed in obtaining winds aloft are by pilot balloons and the speed of motion of altocumulus clouds. The primary period is 1927-1936. A discussion of data and methods used is followed by deductions regarding times of aeroplane crossings of the Tasman Sea, large increases of wind with height, and winds at 16,000 feet. A seasonal distribution of strong thermal winds is given for Melbourne, Adelaide, Warwick, and Sydney. Eleven maps show the vector change of wind between 1-5 km for these cities. Section 3 contains mostly tables showing velocity components and direction frequencies of alto-cumulus and pilot balloon flights, and mean velocity components of winds at 5 km.
Abstract from Creasi (1960b)

1940 LOEWE, F. |/X|
Discussion of eight years of aerological observations obtained by means of aeroplanes near Melbourne.
Commonwealth Bureau of Meteorology
Bulletin No. 27

This report describes the method of taking aerological observations by special flights of instrumented aircraft and summarises monthly and daily variations of temperature, water vapour content, pressure and density for the period 1931-1939.

1940 O'REILLY, B. |/A|
Green Mountains.
Reprinted and published in paperback by W.R. Smith and Paterson Pty Ltd, Brisbane.
See also: "It was the wildest weather we had for years - The Stinson story", Aviation Safety Digest No 94, 1976, pp 14-21.

On 19 Feb. 1937, the Stinson VH-UHH flying a scheduled passenger service from Archerfield to Lismore attempted to fly below low cloud above the Lamington Plateau, a ridge of the MacPherson Range. The Southerly wind was unusually strong and a downdraft in the lee of the ridge caused the aircraft to crash into the dense rain forest killing all but three passengers.

1942 BUREAU OF METEOROLOGY |/K|
Meteorological conditions over Brisbane-Thursday Island air route.
Bureau of Meteorology, Research Report Series 1 No. 1. Melbourne 1942.

This study contains a description of the pressure distribution, surface and upper winds, air density, cloud, visibility, precipitation, thunderstorms and bumpiness, icing, temperature and humidity. Table I- Wind direction and frequency, (monthly) for stations Archerfield, Rockhampton, Townsville, Cooktown during morning and afternoon for the surface and at 3000, 6000, and 10,000 feet. Table II- Air density, in gm/cubic meter for above stations including Mackay and Cairns for Jan., Apr., July and Oct. Table III- Rainfall and wet days, (monthly and annual) for above stations plus Coen and Thursday Island. Table IV- Temperature and humidity, gives the mean maximum, minimum, and relative humidity for January, April, July, October for the above stations plus Brisbane but omitting Archerfield. No period of record is given on any of these tables.
Abstract from Creasi (1960b)

See also Reports Numbers:
2 - Daly Waters - Cloncurry - Charleville - Brisbane air route,
3 - Sydney - Brisbane air route,
4 - Adelaide - Perth air route,
5 - Darwin - Adelaide air route,
6 - Perth - Wiluna - Kalgoolie air route,
7 - Perth - Darwin air route,
7a- South West WA (esp. Perth) - Albany air route,
8 - Sydney to Melbourne air route (including Sydney - Bega, and Melbourne - Bairnsdale air routes),
9 - Sydney - Adelaide air route (including Mildura - Broken Hill air route),
10 - Melbourne - Hobart air route,
11 - Melbourne - Adelaide air route (including Melbourne - Hamilton air route),
11a- Adelaide - Kangaroo Island.

1942 RAAF METEOROLOGICAL BRANCH |/K|
Meteorological conditions at Canberra and surrounding districts, particularly as affecting aviation.
Research Reports. Series 2, (No. 1) Melbourne 1942.

The text reports on the winds, visibility, fogs, low clouds, rainfall, temperature, as they affect flying. Period of record not given but number of years of record is given. For example, average number of days of fog based on a 12 year period. However, table 2 Monthly wind direction and speed in the upper air gives a period of Jan. 1938 - Mar. 1941. Table 3 Visibility gives monthly and annual frequencies at Canberra. Table 4 and 5 gives prevalence and height of low cloud. Table 6 shows the mean maximum and minimum temperatures, the extreme shade temperatures and the extreme temperature ranges monthly and annually for 22 years. Table 7 gives seasonal air densities. Five figures give the percent frequencies and the wind direction and speed by months (morning and afternoon) for surface and 3000, 6000, 10,000 feet above mean sea level.
Abstract from Creasi (1960b)

See also Reports Numbers:
2 - Mildura - Wentworth - Lake Victoria area,
3 - Evans Head district,
4 - Coffs Harbour (NSW) district,
5 - Nabiac (NSW),
6 - Williamtown (NSW) district,
7 - Nowra (NSW) district,
8 - Moruya Heads (NSW) district,
9 - Midlands Region; covering Epping, Coonara Junction, Campbelltown and Tunbridge,
10 - Paratroop training unit - location research reports,
11 - Cape York Peninsula,
12 - Exmouth Gulf (WA).

1942 ROYAL AUSTRALIAN AIR FORCE |/K|
Weather on the Australia Station. Local Information.
R.A.A.F. Publication No. 252, Volume II, July 1942.

Contains climatic data, including histograms of upper wind direction & frequency, but no data on occurrence of turbulence. Also contains a bibliography of early reports on each region.
Contents include:
Part 1 - Bismarck Archipelago,
Part 2 - Northern Australian waters,
Part 3 - The Coral Sea west from longitude 155 deg. E including the coast of Papua and the Queensland Coast from Cape York to Rockhampton,
Part 4 - The Pacific Ocean from the Equator to the Tropic of Capricorn between longitudes 155 and 177 deg. East,
Part 5 - The Pacific Ocean between the Tropic of Capricorn and latitude 32 deg. S, West of longitude 170 deg. E including the Australian Coast from Rockhampton to Port Macquarie,
Part 6 - The South West Tasman Sea (32-46deg. S, 146-160deg. E) including the Australian Coast from Port Macquarie to Wilson's Promontory, and the Eastern Part of Tasmania,
Part 12 - The Eastern Part of the Netherlands East Indies and the surrounding seas (0-10 deg. S, 120-141 deg. E).

1943 AUSTRALIAN METEOROLOGICAL SERVICE |/K|
Research Reports Series 3, No. 2, 4, 5, 6, 7.
Australia, Meteorological Service. Melbourne 1943.

Contains titles No. 2, 4, 5, 6, 7 but the data is mostly for the East Indies. Stations in Australia are Cooktown in No. 2, Onslow in No. 4, and Darwin in No. 6. Cooktown has monthly and annual mean surface pressure, air temperature, relative humidity, cloud amount, rain, no. of days with fog and thunder heard (1878-1939), monthly and annual 0900 and 1500 percentage of wind direction. Onslow gives monthly wind direction and speed in the upper air 1500, 3000, 6000, 10,000 feet (July 1939-July 1941); monthly and annual average rainfall and no. of rain days and thunder heard. Darwin has upper winds for 1940-41. In no. 6 there are analysed 3 hourly surface maps from 0300 on the 9th to 1500 on the 11th June 1941 which include northeastern Australia (reason for these dates not given).
Abstract from Creasi (1960b)

1943 HUDDLESTON, H.F. |/M/K|
Air masses of Southeastern Asia and the Southwest Pacific.
U.S. Weather Bureau. Washington, D. C. December 1943.

Two maps show winter and summer air masses in and around Australia indicating the position of the inter-tropical front for February and August.
Abstract from Creasi (1960a)

1944 RAAF DIRECTORATE OF METEOROLOGICAL SERVICES |/K|
Report on general climatic and meteorological conditions in The Philippine Islands.
R.A.A.F. Directorate of Meteorological Services, Research Report List No. 2, Section 2, Series 7, No. 14. (Confidential)

Contains climatic data but no turbulence data.

1944 TRELOAR, H.M. |/X/K|
Discussion and diagrams of upper winds.
R.A.A.F. Meteorological Research Report List No. 2, Section 1, Series 3, No.6.

Discussion and diagrams of upper winds 4km to 10km, latitudes 4 degrees north to 12 degrees south, longitudes of Sumatra to Solomon Islands. Contains wind roses and histograms of wind direction.

1945 LOEWE, F. |/X|
Discussion of seven years of aerological observations obtained by means of aeroplanes near Sydney.
Commonwealth Bureau of Meteorology
Bulletin No. 33

Discussion of seven years of aerological observations obtained by means of aeroplanes near Sydney.

1946 METEOROLOGICAL OFFICE. GREAT BRITAIN. |/K|
Meteorological report on the Ceylon-West Australia air route. Aviation Meteorological report No. 32. M.O.M 365/32. Air Ministry. (London) 1946.

This report is predominantly for the air route but some data are given on Onslow and Perth. Monthly and annual report of surface pressure; temperature; humidity; precipitation; number of days of rain, fog, thunder, clear and overcast sky; cloud amount; wind direction for Onslow based on the period 1886 to 1942 with various periods of record for various elements in appendix I. Appendix II, "Low cloud at Onslow,"(Aug. 1940-Feb. 1943) shows the percentage frequency at 0900 and 1500 hours. A brief text describes the pressure systems, intertropical front, heights of clouds, winds aloft, upper winds. Maps touch on only the edge of western Australia. Abstract from Creasi (1960b)

1946 NEWMAN, B.W. & McCANN, A. |/K|
Weather conditions affecting aviation over the Tasman Sea. Part IV.
Bureau of Meteorology, Melbourne. Bulletin No. 36. 1946

Some typical cases of adverse flying conditions are indicated by nineteen surface maps covering the period from Sept. 8, 1943 to Sept. 4, 1945 include the southeastern part of Australia. The report notes that severe turbulence is experienced in (a) vigorous cold fronts (b) deep southerly streams. Three examples were given,
(1) A Qantas flying boat encountered a line squall near Rathmines, the aircraft dropped instantly 100 feet; seats were torn loose, and several passengers suffered head injuries from striking the top of the cabin.
(2) Under a strong westerly wind, eddy effect from the ranges gives moderate turbulence below 6,000 feet and extending a short distance seaward.
(3) On a recent AE flight, the T.E.A. pilot was unable to top a vigorous front at 16,000 feet and was forced to fly under the cloud where severe turbulence was encountered in a wind estimated at 70 mph. (see also Treloar & Newman (1938))

1946 RADOK, U. |/X|
Discussion of four years of aerological observations obtained by means of aeroplanes near Perth.
Department of Interior, Meteorology Branch,
Bulletin No. 37

This report summarises some early aerological data taken on special flights of instrumented aircraft.

1947 HOOKE, F.H., & WILLS, H.A.
A Programme of Flight Load Research.
A.R.L. Report SM. 87

This report deals with the need to have a flight load research programme and gives a description of the method proposed to obtain the type of data required.

1947a HOOKE, F.H. |/C|
Load Frequency measurements on a Lincoln Aircraft.
A.R.L. Note SM.150 (Jan 1947)

The results of the data collected from load frequency measurements on a Lincoln Aircraft flying in the vicinity of Darwin are analysed. These data, which comprise sixty hours of flying time, are then compared with similar data from overseas. The data are from V-g recorders. A small amount of simultaneous V-g-h data was also recorded but no height breakdown of gusts is given.

1947b HOOKE, F.H. |/I|
Bibliography on gust loads and the life of Aircraft Structures.
C.S.I.R., A.R.L. Fgl.9

This bibliography is a list of early work on gust loads, some reports dating as early as 1912. Very little Australian work is listed in this bibliography. Such work as is listed and relevant to this present report has been incorporated herein.

1947 RADOK, J.R.M., & STILES, L.F. |/H|
The application of the theory of report SM.89 on the motion and deformation of aircraft in atmospheric disturbances to a typical four engined aircraft.
A.R.L. Report SM.105

Extension of Radok 1947.

1947a RADOK, J.R.M. |/H|
The Motion and Deformation of Aircraft in Non Uniform Atmospheric Disturbances.
A.R.L. Report SM.101

This report outlines some important investigations on the motion of an aircraft under gust loads. A theory is then developed for the flexural and torsional vibration of an aircraft.

1947b RADOK, J.R.M. |/H|
The Motion and deformation of Aircraft in Atmospheric disturbances.
A.R.L. Report SM.89

Extension of Radok 1947a.

1948 HOGAN, J. |/K|
Meteorology of the Indian Ocean area between Western Australia and India.
Department of Interior, Australia. Meteorological Branch, Bulletin No 40.

A month by month discussion of the weather in the Indian Ocean between India and Western Australia.

1948 HOOKE, F.H. |/C|
V-g Recorder results from a Dakota Aircraft operating between Australia and Japan.
A.R.L. Report SM.111 (April 1948)

V-g recorder results from a Dakota aircraft flying between Australia and Japan are presented in tabular and graphical form. A total of 288 flying hours of data is presented.

1948 RADOK, J.R.M., & STILES, L.F. |/H|
The Motion and Deformation of Aircraft in Uniform and Non-Uniform atmospheric Disturbances.
Council for Scientific and Industrial Research.
Aeronautical Research Report ACA-41

See Radok J. 1949a.

1948 RADOK, U. |/G|
An investigation of convective gusts by means of sailplanes under S.E. Australian summer conditions.
A.R.L. Report SM 110

Gust velocities up to 25 ft/sec were observed in a moderately cold westerly air stream, while velocities up to 35 ft/sec occurred frequently in a very cold southerly stream. Downdrafts of the order of 50 ft/sec were encountered by the Tiger Moth aircraft in a large area behind a dust storm.

1948 WARREN, H.N. |/N/W|
Maximum surface wind gusts in the Australian region.
Issued by H.N. Warren. Australia. Commonwealth Meteorology.

The text discusses the statistical information and gives a definition of the term "gusts". These records have been mainly obtained from Dine's Anemometers and these tend to have higher values than older instruments. In addition, the airport records are for short periods of time.

1949 DESMOND, E., & RADOK, U. |/V|
Note on vertical air currents on the Tasmanian air route.
Commonwealth Meteorological Bureau
Weather Development and Research Bulletin, Number 13, July 1949.

The existence of large areas of rising and descending air causing uncontrollable altitude changes to aircraft is reported. It is suggested that some of the disturbances may be waves caused by the existence of a temperature inversion in conjunction with a pressure trough over the escarpment of the Central Tasmanian Plateau.

1949 DESMOND, E., & RADOK, U. |/M|
On the genesis of a Dust Wall.
'Weather', January 1949.

This note presents observations of a dust wall which appeared to arise from a local instability phenomenon moving in the northerly flow. It seems that this particular dust wall arose from a local accumulation of cold air which had been cooled below the temperature of the unstable environment by moist-adiabatic descent. The fact that the lowering of the cloud base did not appear until several minutes after the increase in surface wind and the initial rising of the dust suggests that the disturbance started in the air immediately above the highly unstable surface layer and from there spread to higher levels.

1949 HOOKE, F.H., & FERSTAT, Q. |/C|
V-g Recorder results from a DC-3 Aircraft operating between Perth and Darwin.
A.R.L. Abstract of Report SM.135 (Dec 1949)

V-g recorder results from a DC-3 Aircraft operating between Perth and Darwin are analysed and compared with the results obtained from similar aircraft in different parts of the world. The 493 hours of data are extrapolated to 10,000 hours to give an indication of the margin of safety. A histogram of flying time at each altitude is given.

1949 NEDERLANDS METEOROLOGISCH INSTITUUT |/T/W|
Sea areas round Australia - oceanographic and meteorological data.
Kominklyk Nederlands Meteorologisch Instituut, Publication No. 124.
SWP00066/738

Mean monthly maps are presented of the general current circulation, current roses, air and sea surface temperature, mean sea level pressure, fog, precipitation, and storm and gales. The area covered by these maps is from 0-50 deg. South and 100-180 deg. East, including New Zealand. Data was used from 1854 to 1939.
Charts 85-96 show the tracks of tropical cyclones which cross Australia. These charts are based on 15 day periods for January, February and March while April is computed for the entire month and the remaining months are combined for every two months. The base period used was 1924-1948 and 1897-1925. In addition, a table of estimated monthly number of tropical cyclones is on p.77.
Abstract from Creasi (1960b)

1949a RADOK, J.R.M. |/H|
An extension of the earlier theory of gust loads on wings.
A.R.L. Report SM.138

This report discusses the application of incompressible flow theory to aerofoils in unsteady motion. Also it shows how the gust can be specified by an acceleration function referring to the centre of mass of the aircraft.

1949b RADOK, J.R.M. |/H|
The problem of gust loads on Aircraft. A survey of the theoretical treatment.
A.R.L. Report SM.133

See Radok J. 1949a.

1949c RADOK, U. |/R|
A Remarkable Thunderstorm Flight Record.
Australian Journal of Scientific Research Series A- Physical Sciences
Vol. 2, No. 4, pages 550-563

An examination of the barogram of a glider flight in a Thunderstorm in Benalla, Victoria. Special attention is paid to large downdrafts.

1950 BUREAU OF METEOROLOGY |/K|
Meteorological conditions affecting aviation on international air routes to Australia and Australian internal air routes. Bureau of Meteorology, North Melbourne 1950.

This book consists of three parts, Sydney to Darwin air route, Darwin to Singapore air route, and Sydney to Vancouver air route and supersedes earlier publications. Part one contains meteorological tables for Mascot (near Sydney), Darwin, Cloncurry, Charleville, and Daly Water. The text discusses a summary of flying weather and the general synoptic climate while surface weather maps give examples of typical synoptic situations. Part two has little data about Australia except for Darwin (1870-1939). Part three contains little data in Australia except for Sydney. Appendix one shows a frequency distribution table of effective headwinds at 10,000 and 25,000 ft for the trans-Pacific air route and seasonal wind roses at various altitudes on maps of the route. Appendix two gives tables of temperature and relative humidity of the upper air at a few cities in Australia showing examples in different air masses. Appendices 3 and 4 are meteorological tables of mean monthly and annual surface data for pressure; air temperature; relative humidity; cloud amount; precipitation amount and 24 hour fall; visibility; density altitude; and number of days of rain, thunderstorms and fog. The general period of record is 1939-1948 with some tables going back to 1891. Appendix three is for Mascot and four is for alternative landing fields in eastern Australia (Essendon, Dubbo, Narromine, Eagle Farm and Archerfield). Appendices five and six mainly concern the air routes and show meteorological tables for airports on the Pacific air route and airfields in the South Pacific not on the direct air route. Figs. 22-29 in Part I are seasonal wind rose maps at 1.5, 3.6, 10, and 20 thousand feet above msl. The speed in knots and the wind direction is given by a percent frequency scale. In appendix I seasonal wind roses for Sydney and along the route to Vancouver are shown for 500m, 2, 3, 5, 6, and 10 thousand meters. There are also two mean surface isobaric maps for Jan. and July which include that part of Australia east of 130 degrees east.
Abstract from Creasi (1960, a&b)

1950 RADOK, U. |/V|
Report on a flight investigation of lee wave disturbances near Melbourne.
Aust. Met. Mag., Weather Development and Research Bulletin No. 15, May 1950.

Horizontal flights in a Tiger Moth aircraft at altitudes from 3000 ft. to 10,000 ft. during strong easterly winds across the Dandenong ranges showed evidence of wave-like disturbances in their lee, with a particularly marked region of descending air directly over the ridge.

1951 FERSTAT, Q. |/C|
V-g records from "Mustang" Aircraft in training.
A.R.L. Note SM.192 (R) (Sept 1951)

V-g recorder results totalling 102.5 flying hours from a Mustang aircraft. These records contain various training manoeuvres, which probably mask the effect of any gust loads.

1952 GIBBS, W.J. |/P|
Notes on the mean jet-stream over Australia.
Journal of Meteorology 9(4): 279-284, August 1952.

Two small maps give the mean speed and the direction of the geostrophic wind at 200mb for July and January. A stippled area indicates the wind speeds above 80 knots for July and above 50 knots for January. Approximately 10-50 degrees South latitude and 110-175 degrees East longitude is the area outlined including New Zealand on about the same scale. An estimated period of record is 1943 to 1951.
Abstract from Creasi (1960a)

1952 LOEWE, F., & RADOK, U. |/K/X|
A meridional aerological cross-section in the South-West Pacific.
Seventh Pacific Science Congress, Vol. III, 1952.

4,800 radiosonde flights from six coastal and three inland stations of Eastern Australia have been used to draw for the summer and winter seasons vertical cross-sections of the average temperature along the eastern coast of Australia.

1952 PHILLPOT, H.R., & REID, D.G. |/X|
Equivalent headwinds on Australian air routes.
Bureau of Meteorology, Australia. Bulletin No. 41, May 1952.

Descriptors: Head winds, air routes in Australia, winds.

1952 REID, D.G. |/V|
Standing waves.
Australian Met. Mag. No. 2, December 1952.

The occurrence of lenticular clouds to the lee of mountain ranges has long been known. Glider pilots were attracted to this evidence of vertical motion since the first wave soaring flight was made in Germany in 1933. It can be said that wave motions can occur to the lee of any pronounced orographic obstacle, specially if it extends some distance perpendicular to the airstream.

1952 TREFRY, C.R. |/J/V|
Clear Air Turbulence over Southern Australia.
Paper presented to the 1952 OSTIV Congress, Madrid.
See also: A.R.L. Contact Note. Folio 29, File M2/518.

The first paper to suggest that CAT is caused by wave motion and that severe CAT is caused by breaking or unstable waves. The first conclusion arose from the observation that CAT seemed to occur in deep stable layers, the second conclusion from observations of cirrus cloud patterns.

1953 BAUM, Q., & HOOKE, F.H. |/E|
Counting Accelerometer results from a Bristol "Freighter" Aircraft operating in South-Eastern Australia.
A.R.L. Note SM.207 (Aug 1953)

Counting accelerometer results from a Bristol freighter aircraft covering 95 flying hours during Autumn and Winter are presented. The number and magnitude of gusts are found to decrease with altitude. Tabulated acceleration occurrences for each 10,000 ft altitude are given. The accelerations were not converted to gust velocities. Flights covered mainly Melbourne-Tasmania with a few trips to Adelaide or Sydney.

1953a HOOKE, F.H. |/F|
Preliminary counting accelerometer results from a "Dove" Aircraft in Western Australia.
A.R.L. Tech. Memo. SM.33 (Nov 1953)

Gust records from Dove aircraft, consisting of 57 flying hours, are briefly analysed. The accelerometers were only read on the ground so no height breakdown of gusts is available.

1953b HOOKE, F.H. |/F|
Further counting accelerometer results from a "Dove" Aircraft in Western Australia.
A.R.L. Tech Memo SM.34 (Nov 1953)

Gust records from a Dove aircraft operating in Western Australia are briefly analysed. The data covers 128 flying hours. No height breakdown of gusts is available.

1953 PHILLPOT, H.R., & REID, D.G. |/X|
Upper air temperatures for the Australian region.
Australia. Bureau of Meteorology, Bulletin No. 42 Melbourne 1953.

The mean isotherms at two degrees centigrade intervals are given for the 850, 700, 500, 300, 200, 150, and 100 mb levels for January, April, July and October. The period of record is approximately 1943-1951. The maps extend from about 10-50 degrees south latitude and 100-180 degrees east longitude. Abstract from Creasi (1960a)

1953 RADOK, U. |/V|
Nocturnal low-level turbulence near Cambridge Aerodrome.
Australian Meteorological Magazine No.6, May 1954.

Two incidents in the early night hours are outlined which involve aircraft immediately after take-off from the aerodrome at Cambridge, Tasmania. It is suggested that horizontal rather than vertical currents were responsible. One of the incidents suggests the presence of lee waves, the other stagnation of cold surface air, accompanied at times by the formation of large eddies with vertical axes.

1953 WORLD METEOROLOGICAL ORGANIZATION |/R|
World Distribution of Thunderstorm days. Part I: Tables
WMO - No 21. TP.6
ARL Ref. No. 551.515.4 WOR

These records give the annual mean numbers of thunderstorm days at various observatories throughout Australia (and the rest of the world).

1954 BACON, N.E., & HOOKE, F.H. |/C|
V-g records from a Bristol "Freighter" of the R.A.A.F..
A.R.L. Note SM.214 (R)

V-g records from a Bristol Freighter of the R.A.A.F. are presented, covering fifty six and a half flying hours.

1954 HOOKE, F.H. |/H|
The influence of aeroplane characteristics on the response to gusts of various forms.
Australia- A.R.L.Consultative Committee, Report ACA-54

This report calculates the influence of aeroplane characteristics on the response of an aircraft to various forms of gusts.

1954 KARELSKY, S. |/K/T/M|
Surface circulation in the Australasian region.
Australia. Bureau of Met. Met. Study No. 3. Melb. Nov. 1954.

These maps show seasonal distribution of cyclonicity and anticyclonicity. Month to month changes are compared with the distributions of land and sea surface temperatures while the deviations from normal patterns are mapped. Winter circulations are classified into certain types of similar distributions of anticyclonicity. Most maps are based on the period 1946-1952 and are on a 1:57,500,000 scale extending from about 10 to 55 deg. south latitude and 100 to 180 deg. east longitude. This study of the general circulation presents maps of frequencies of cyclonic and anticyclonic centers by 5 degree squares and changes in highs and lows from month to month are presented.
Abstract from Creasi (1960a)

1954 RADOK, J.R.M. |/H|
Dynamic Bending Moments in Aircraft Wings.
Royal Aircraft Establishment, Farnborough,
Internal memo. No. Structures 242

A parameter is introduced so as to assist with the interpretation of dynamic bending moments in aircraft wings.

1954 RADOK, U. |/V|
A procedure for studying mountain effects at low levels.
Bulletin of the American Meteorological Society, Vol. 35, No. 9, November, 1954, pp. 412-416.

A representative picture of vertical currents above mountainous country is obtained by letting these currents act on an aircraft set to fly horizontally in still air. Pressure and temperature traces recorded by such an aircraft give the effective vertical velocities. Two sets of results are given for illustration.

1954 RADOK, U. |/J/V|
Severe turbulence at high levels over New South Wales.
Meteorological Magazine (London), V83, 1954, pp 48-52.

On August 22, 1951, a Canberra jet aircraft flying from Laverton to Sydney at a pressure altitude of 30,000ft. encountered a 30-mile stretch of severe turbulence in clear air over Tumut, New South Wales. At the time the aircraft was flying past the south-west corner of a gap in the Australian Alps, not far from where the ground descends by more than 4,000 ft. to below the 1,000 ft. level. With the stable stratification of the surface layers and the large vertical wind shear the flow further south must have been deformed by the mountains up to considerable heights. The occurrence of severe turbulence in the region of transition to the less affected flow through the mountain gap then becomes intelligible.

1955 BACON, N.E. |/C|
V-g recorder results from a Bristol Freighter aircraft operating in South Australia.
A.R.L. Note SM 223

Flight load measurements were obtained from V-g recorders installed in R.A.A.F. Bristol Freighter aircraft operating in South Australia. Seventy six slides covered a flying period of 352 hours of normal transport operations.

1955 DEACON, E.L. |/W|
Gust variation with height up to 150m.
Quart. Jnl. Roy.Met.Soc. Vol 81 pp562-573

From the analysis of wind measurements taken from various heights on a tower, predictions are made of extreme vertical gust velocities.

1955a HOOKE, F.H.
The Atmosphere and Aeronautics.
AIRCRAFT, July 1955.

A review of the progress made into the research of the effects of wind gusts, and other meteorological phenomena, affecting the operation of aircraft.

1955b HOOKE, F.H. |/C/O|
Seasonal variations in flight load severity measured on the eastern and western sides of the Australian Mainland.
A.R.L. SM.47 (Tech. Memo.) (Oct 1955)

Analysis of about 2700 hours of V-g records shows marked differences between the frequency of upward and downward loads of the same magnitude. The analysis takes into consideration seasonal variations, and the differences between West coast (Perth-Broome-Darwin) and east coast (Sydney-Brisbane-New Guinea) routes.

1956 BACON, N.E. |/E/F|
Interim note on counting accelerometer results obtained from Viscount Aircraft.
A.R.L. SM.227 (note)

The data obtained from a TAA Viscount aircraft flying between the five Australian capital cities is analysed. The results show a marked bias towards downward wind gusts on all routes. 346 hours of data was obtained, but a height breakdown was only obtained for 110 hours. This period was only subdivided into low altitude (i.e. climb and descent) and high altitude cruise (between 17000 and 22000 ft).

1956 BUREAU OF METEOROLOGY |/T|
Proceedings of the Tropical Cyclone Symposium, Brisbane, December,1956.
Issued by the Director of Meteorology. Melbourne.
ARL Ref No. 551.515 TRO

A review of tropical cyclone occurrence over the Australian region during the past fifty years indicated the variation in frequency of occurrence with time of year and locality, while a more detailed analysis of the 1955-56 season described the behaviour of the thirty-two disturbances of all intensities which occurred.

1956 HOOKE, F.H., & BAUM, Q. |/C|
Gust Research with V-g recorders on Australian routes.
A.R.L. Report SM.241 (April 1956)

The data collected from the V-g recorders fitted on the aircraft of several airlines are analysed, and the envelopes of acceleration versus speed and gust velocity are constructed for four types of aircraft. About 11,800 hours of data were recorded, and appear to include the lesser amounts of V-g data reported earlier in separate ARL publications. For some airlines downward gusts are more frequent than upward gusts, and for no airline are upward gusts significantly more common than downward gusts.

1956 KARELSKY, S. |/K/T|
Classification of the surface circulation in the Australian region.
Australia. Bureau of Met. Met. Study No. 8. Melb. April, 1956.

This paper is a continuation of the circulation types started in the meteorological study no. 3 by the same author. Surface weather types are classified according to degree or type of cyclonicity or anticyclonicity for the period 1946-1953. Moreover, seasonal variation in frequency types, source areas of cyclogenesis or anticyclogenesis are shown on maps. Further nine main types and two transition types are identified. The map area for all maps extends approximately from 10 to 50 degrees south latitude and from 100 to 180 degrees east longitude on a scale of 1:57,500,000 including New Zealand.
Abstract from Creasi (1960a)

1956 RADOK, U. |/V|
Soaring the Warburton Wave.
Australian Gliding, November 1956.

Standing wave clouds over the Upper Yarra region have been watched by Melbourne glider pilots for years. Their systematic investigation began in 1950 with theodolite measurements which placed the principal cloud into the lee of Mt. Donna Buang (4077 feet) above Warburton.

1956 RUTHERFORD, G.T. |/A/J|
Clear air turbulence in Australia.
Australian Meteorological Magazine, No. 12, 1956.

About 40 observations of moderate or severe high-level turbulence in clear air have been reported in Australia between February 1953 and December 1955. These reports have been examined in relation to the relevant jet stream patterns, stability characteristics, pressure height contours, fronts and topography, and the probable causes of the turbulence set out. Turbulence is most commonly associated with strong wind shear (commonly with a jetstream maximum in the vicinity) and/or a stable layer, such as the tropopause, at turbulence level.

1956 TROUP, A.J. |/M/X|
An aerological study of the meridional front in Western Australia.
Australian Meteorological Magazine, Volume II, Sept. 1956, pp. 1-22.

An analysis of simultaneous radiosounds at Perth and Kalgoorlie when a "meridional front" lies between them, shows that half the disturbances are non-frontal in nature. Radiosondes studied are for the period May to Sept. 1950-54. Table 1 shows the mean differences Kalgoorlie to Perth of temperature and mixing ratio for each month May-sept. and the period average May-Sept. for the 900, 850, 800 and 700 mb level.

1957 RADOK, U., & GRANT, A.M. |/K/X|
Variations in the high tropospheric mean flow over Australia and New Zealand.
Journal of Meteorology, Vol. 14, No. 2, April, 1957, pp. 141-149.

18,000 radiosonde flights have been used to construct a three-year series of monthly mean cross-sections for the Eastern Australian sector and to draw monthly mean 200-millibar charts for the entire region of Australia and New Zealand.

1957a ROYAL AIRCRAFT ESTABLISHMENT |/I|
List of Australian reports on gusts and meteorological information issued during November 1955 - September 1956.
ARC 19041. GR 173.

1957b ROYAL AIRCRAFT ESTABLISHMENT |/I|
List of Australian reports on gusts and meteorological information issued during the period 1st October - 31st December 1956.
ARC 19201 GR 178

1958 BUREAU OF METEOROLOGY |/X|
Upper air data, Australia.
Bureau of Meteorology, Australia. 1958.

This publication contains mean monthly values of pressure and temperature at the surface, and geopotential and temperature at different pressure surfaces from 100 to 1000 millibars.

1958 HEATH-SMITH, J.R. |/E|
Atmospheric Turbulence encountered by Bristol Freighter aircraft in United Kingdom, West Africa and New Zealand.
Royal Aircraft Establishment, Farnborough.
Technical Note Structures 251, October 1958.

Gust accelerations were recorded during 1,500 hours of flying below 10,000 ft by Freighter aircraft in United Kingdom, West Africa and New Zealand. About 628 hours of that time was in New Zealand. Acceleration exceedances in 4 different height bands up to 10,000 ft are given together with a similar classification of gust velocity exceedances. Acceleration and gust velocity exceedances are also subdivided into initial climb, other climb & descent, and cruise. Gusts are encountered less frequently in cruise than in climb and descent, and it is hypothesised that this is because pilots choose their cruise altitude to minimise turbulence. The gust frequencies in the three regions are compared and the influence of the flight plan on the values recorded is discussed. The average distance between gusts greater than 10ft/sec, E.A.S. within 1,000ft of the ground, varies from two miles in New Zealand to twelve miles in West Africa. Over the sea the distance is greater by a factor of 2 or 3.

1958 JEN-HU-CHUNG |/K|
Ground temperatures.
Vol. 1, Blue Hill Met. Obs. Harvard University. Milton, Mass. June 21, 1958. 21 maps, 457 refs.

All the maps in this volume are of the world and were used only because this element is difficult to find elsewhere. Figs. 10-31 inclusive are soil temperature maps for 10, 30 and 120 cm depths. They have been drawn for the four months, January, April, July and October. Isolines are drawn in both degrees F and C on a scale of 1:150,000,000. Figs. 27-30 inclusive are maps showing the soil temperature profiles for the months of January, April, July and October (Melbourne only). The corresponding monthly air temperature is indicated by a dot on a scale 1:100,000,000. Figs. 31-33 are maps including Australia for the annual range in ground temperature at 10, 30 and 120 cm depths with isolines in both degrees F and C on a scale of 1:180,000,000. Fig. 34 is a map (Griffith only) of the profile of the annual range in soil temperature. The annual range is indicated by a dot.
Abstract from Creasi (1960a)

1958 RADOK, U., & CLARKE, R.H. |/P|
Some features of the Subtropical Jet Stream.
Beitrage zur Physik der Atmosphare, Vol. 31, 1/2, 1958.

The upper zonal flow in subtropical latitudes is examined by means of two sets of instantaneous meridional cross sections through Eastern Australia each covering a three day period.

1959 HEATH-SMITH, J.R. |/E|
Atmospheric turbulence encountered by Super Constellation Aircraft.
Royal Aircraft Establishment,
Technical Note No. Structures 257, Jan 1959
C.P. No. 432, SR11558

Counting accelerometer records representing 1 million miles were obtained from Super Constellation aircraft flying between Australia and the U.K. and across the Pacific Ocean and Indian Ocean. Total flying time was 3740 hours of which 445 hours was in the Australian region. The segments covering the Indian ocean and Pacific ocean, and to a lesser extent the Far East are also relevant to Australian flying interest. For each region and each height band up to about 20,000ft there is a table of exceedances of various vertical gust velocities. It is shown that, below 10,000ft the frequency of gusts exceeding 10ft/sec is less over sea than over land by a factor of at least 2. There is evidence from four geographical regions of a single fluctuation of turbulence during the year, the phase depending to some extent on longitude.

1959 McRAE, J.N., WELLER, G.E., & LEE, D.M. |/L|
Early morning inversions at Rathmines and Williamtown and their penetration by hot plumes assuming still air.
Bureau of Meteorology, Australia. Working Paper 58/1937.

To study the problem of the penetration of the atmosphere by hot plumes in the Lake Macquarie (New South Wales) area, analyses were made of temperature and mixing ratio and their vertical gradients in the low levels at Rathmines and Williamtown.

1959a PHILLPOT, H.R. |/X|
Winds at 30,000 and 40,000 feet in the Australia - New Zealand - Fiji area.
Australian Bureau of Meteorology
Project report 59/2645, Working paper No. 6.

The vector mean winds and standard vector deviations derived from observations made at a number of upper wind stations, covering the area from the west coast of Australia eastwards to longitude 180 degrees, and for the levels of 30,000 and 40,000 ft, have been computed and entered on a set of charts which also show isotachs and isopleths of standard vector deviation. Streamlines have not been drawn because the flow is predominantly westerly. On some of the charts it has been possible to locate the average position of the jet stream.

1959b PHILLPOT, H.R. |/H|
Turbojet aircraft performance characteristics and their meteorological implications for Australian air route conditions.
Bureau of Meteorology, Australia. Project Report 59/2630.

In this article an attempt is made to set down some of the physical principles on which the operation of civil turbojet aircraft is based, and particularly so far as they concern the meteorologist.

1959 ROBEY, F.S. |/A|
Fatal Accident to Sabre A94-981 near Singleton (NSW) on the 25th June, 1959.
Royal Australian Air Force, Crash Critique No. 60.
Directorate of Flying Safety, Department of Air, Melbourne.

On Thursday 25th June 1959 a Pilot Officer from RAAF Base Williamtown reported that he was encountering severe turbulence in cloud and said he was "turning 180", presumably to get out of it. Shortly afterwards a farmer saw the aircraft crash 9 n mile South of Singleton NSW.
At the time of take-off the weather at Williamtown was clear. To the West and South-West there was a bank of cloud and thunderstorm activity associated with a secondary cold front which was expected to pass through Williamtown at about 1500 hours. There is no doubt that when the pilot reported severe turbulence he was in the secondary cold front cloud plotted to the West of Williamtown at 1355 hours by the weather officer. Ground observers both in the area of the crash and at Williamtown were definite in their opinions that the storm associated with this section of the front was unusually severe for wintertime.

1960 ASHTON, H.T. |/R|
Thunder Days in Australia.
Australian Meteorological Magazine No.30 September 1960, pages 44-51

A thunder day map is constructed, and a number of histograms of thunder days are shown.

1960a CREASI, V.J. |/I|
Bibliography of climatic maps for Australia.
Weather Bureau, USA. Rept. No. WB/BM-16.
NTIS: AD-665 178

The document lists 86 reports by title and author, and includes descriptive comments concerning the contents of these reports.

1960b CREASI, V.J. |/I|
A selected bibliography on the climate of Australia.
Weather Bureau, USA. Rept. No. WB/BC-44.
NTIS: AD-664 746

The document lists 219 reports by title and author, and includes descriptive comments concerning the contents of these reports.

1960 McDONELL, R. |/A/J|
Case of severe turbulence (on the Adelaide - Sydney route encountered by a Viscount at 15000ft).
Australian Met. Magazine Vol 31 pp41-43, Dec. 1960.

Unusual metereological conditions were encountered on a flight in a Vickers Viscount from Adelaide to Sydney on the afternoon of 3 January 1960. The aircraft was flying clear of clouds when it struck severe turbulence which took the aircraft up an estimated 2,000ft with an increase in air speed from 155 to 185 knots. During the ascent it passed into Cu cloud when it was subjected to a downdraft of extreme violence causing loss of control.

1961a BRUCE, G.P., & HOOKE, F.H. |/F|
Flight loads on "Canberra" Aircraft of the R.A.A.F.
A.R.L. Report SM.283 (R) (Sept 1961)

The data from 6642 flying hours recorded by 25 aircraft are analysed. In this analysis, each aircraft and each type of duty is treated separately. The instruments were fatigue meters so no height breakdown of accelerations is available. Because of the high accelerations caused by manoeuvres no more than weak inferences regarding turbulence can be drawn.

1961b BRUCE, G.P., & HOOKE, F.H. |/F/O|
Flight Loads on "Viscount" Aircraft in Australia.
A.R.L. Report SM.284 (Nov 1961)

Flight load measurements taken on 10 Viscount aircraft covering a total of 70,198 flying hours are analysed. Seasonal trends are found but a comparison of the results obtained from the individual aircraft show some inconsistencies. The recording instruments were fatigue meters so no height breakdown of gusts is possible. A month by month breakdown for each of about 8 aircraft is given, covering 4.25 years so some seasonal analysis may be possible. Only a crude average conversion to gust velocities would be possible.

1961 GEORGE, J.J. |/J|
Prediction of Clear Air Turbulence.
Shell Aviation News, No. 273

The prediction of Clear Air Turbulence near the Jet Stream over North America is illustrated. The method of forecasting used was the basis for forecasts for project TOPCAT and HICAT in Australia.

1961 GIBBS, W.J. & HOUNSELL, W.K. |/X|
Stratospheric winds over Australia.
Bureau of Meteorology, Australia. Working Paper 60/2612.

High altitude wind data taken at several Australian stations during and after the IGY are used to discuss winds in the stratosphere over Australia.

1961 HIGGS, M.G.J. |/F/O|
Analysis of Flight Loads on DC-6 Aircraft obtained with counting accelerometers in Australia.
A.R.L. Note SM.269 (Mar 1961)

The analysis of 17,983 flying hours of flight loads on DC-6 aircraft. The data are displayed in tabular and graphic form. No variation with height is available, but there is a monthly tabulation of acceleration occurrences for two separate aircraft extending over 3.5 years. If an assumption of similar flight profiles is made a seasonal distribution of turbulence encountered on the main commercial routes may be made.

1961 HOOKE, F.H., PATTERSON, A.K., & PERRY, S.R. |/B|
Preliminary note on flight loads on Cessna and Beaver Aircraft on agricultural operations.
A.R.L. Technical Memorandum SM. 107

Flight loads on Cessna and Beaver aircraft on agricultural operations are measured.

1961 PHILLPOT, H.R. |/X|
Mean westerly jet streams in the southern hemisphere.
Bureau of Meteorology, Australia. American Geophysical Union, Geophysical Monograph No 7. (date uncertain) Also published as Int. Antarctic Met. Res. Centre Tech. Report No. 1.

Meridional cross-section diagrams of temperature and zonal wind have been constructed. Some diagrams have been drawn for selected days in September 1959, and January 1960, to show the temperature and zonal wind distribution between 500 and 50 mb.

1961 RADOK, U. |/J|
Provisional memorandum on high-level turbulence at Woomera.
Sent to H.A. Wills, A.R.L., 1961.

Regular records of high-altitude turbulence have been collected at Woomera since 1951, this memorandum is based on the period 1951-1955. A table gives the numbers of occasions on which reports of turbulence were received from different levels. Separate figures are shown for "jet wind" (April-November) and "non-jet wind" (December-March) periods.

1962 BARNARD, J.M.H., & GEE, S. |/G|
Flight tests of Vampire Mk 35 trainer aircraft.
A.R.L. Note SM.275

The fatigue life of a Vampire Mk 35 trainer aircraft is investigated. Attention is paid to the effect of turbulence.

1962 BUREAU OF METEOROLOGY |/A|
Accident to Viscount Aircraft VH-TVC near Sydney, 30 november 1961.
Bureau of Meteorology, Australia. Working Paper 61/437.

Summary of meteorological aspects of the Report of the Chairman of the Board of Inquiry, and notes on meteorological conditions in the Sydney area, 30 November 1961.

1962 CLARKE, R.H. |/R/S|
Severe local wind storms in Australia.
CSIRO Division of Meteorological Physics, Tech. Paper No. 13. ATP-13.

A search of files on the occurrence of severe local wind storms in Australia has made possible some tentative conclusions concerning the frequency, intensity, and geographical distribution of these tornado like storms. They are on the whole about as frequent as, but much less intense than, North American tornadoes. Among the worst afflicted of the more settled areas in Australia are coastal Queensland, an area around Bendigo in Victoria, and the South West coast of Western Australia.
Necessary pre-conditions are; the existence of a large scale lifting mechanism, such as an intense front with strong circulation around the leading edge; the presence of adequate moisture to a sufficient height; and "parcel" and convective instability in low levels. Cyclonic rotation is a regular feature of such storms with wind speeds at tree-top level of about 100 m.p.h. over a diameter of 50 to 200 yd.

1962 GOODMAN, G.S., BATH, A.T., & McRAE, J.N. |/R|
Notes on sferics, radar and atmospheric turbulence.
Australian Bureau of Meteorology, Working paper 61/437.

Descriptors: Sferics, radar, atmospheric turbulence.

1962 PATTERSON, A.K., HIGGS, M.G.J., & HOOKE, F.H. |/F/O|
A study of the Variability of Fatigue meters, with reference to results from Fokker Friendship Aircraft.
A.R.L. Note SM.276 (Sep 1962)

16208 hours of flight load data from 9 aircraft collected over a period of 18 months is analysed, and an average gust spectrum is drawn. Seasonal variations are examined and standards of accuracy for the meter calibrations are set. Fatigue meters were used so no breakdown of gusts with altitude is possible. However monthly counts for each aircraft make some seasonal analysis possible. For the routes flown turbulence peaks around November and is minimum in May, with gust exceedances of a given level being three times as frequent in November as they are in May.

1962 PATTERSON, A.K. |/B|
Further note on flight loads on a Beaver Aircraft on agricultural operations.
A.R.L. Note SM.277

Further analysis of the data published in Hooke, Patterson & Perry 1961.

1962 SPICER, Justice |/A|
Accident which occurred on 30th November, 1961, near Sydney, New South Wales, to Viscount Aircraft VH-TVC, operated by Australian National Airways Pty. Ltd.
Air Navigation Regulations, Accident Inquiry, August 1962.

This is the report from the Chairman of the Board of Accident Inquiry on the accident to Viscount aircraft VH-TVC near Sydney on 30th November 1961.

1962 TAYLOR, R.H. |/F/O|
Annual Variation of Flight Loads Recorded on Viscount Aircraft by means of the Fatigue Load Meter.
Royal Aircraft Establishment (Farnborough)
Tech. Note Structures 322

Flight load data collected from Viscount aircraft flying in Europe and Australia are tabulated and analysed. Most of the Australian data have also been analysed by Bruce & Hooke (1961). Particular attention is paid to the comparison of the Australian data to the European data for any annual variations. Turbulence incidence is 1.7 to 2.0 times higher in Australia than in Europe and the seasonal variation is also much greater in Australia than in Europe.

1963 APLIN, J.E. |/E|
Atmospheric turbulence encountered by Comet 2 aircraft carrying cloud collision warning radar.
U.D.C. No.551.551:621.396.969.36 [AI] (42) Comet 2
Replaces R.A.E. Tech. Note. No. Structures 335 - A.R.C. 25141.

Counting accelerometer records have been obtained of the turbulence encountered by R.A.F. Comet 2 aircraft, equipped with cloud collision warning radar, on 335,000 miles of operational flying largely on routes connecting the U.K. with Singapore. Some flights from Singapore to Darwin are included in the data.
It is shown that the Comet 2 met significantly less turbulence at all altitudes than the Comet 1 which was not carrying this radar, and that the reduction in the frequency of occurrence of gusts increased with gust magnitude. No gusts as great as 20 ft/sec were recorded by Comet 2 aircraft during the cruise. Comparable data from U.S. aircraft have also been considered, and show a similar reduction in the occurrence of large gusts.

1963 DALTON-MORGAN, T.F., & RIDER, C.K. |/G/J|
Report on the Conduct of Clear Air Turbulence Trials in Australia July-October 1963.
Australian Defence Scientific Service
Weapons Research Establishment
Report TRD 18

This report covers the Test Trials mounted by the Weapons Research Establishment in search of Clear Air Turbulence over the Australian Continent. Also outlines the techniques used and describes some of the major events.

1963 MIZON, E.A. |/G/J/P/V|
Forecasting Aspects of the first Phase of the TOPCAT Trials.
Paper II, Project TOPCAT
Aust. Bureau of Meteorology

Eleven flights relative to the Jet Stream are examined. The mereorological forecast for each flight is noted together with the severity of the turbulence encountered.

1963 REITER, E.R. |/J/P/V|
Clear Air Turbulence Models and Forecasting for Project TOPCAT, Second Phase.
Paper III, Project TOPCAT
Colorado State University,
Fort Collins, Colorado.
NTIS: PB-213 997

This paper presents models of clear air turbulence and forecasting procedures.

1964 KAMIKO, T. |/M|
A detailed structure of two subtropical frontal zones.
Australian Meteorological Magazine, Vol. 47, Dec. 1964, p15-25.

Descriptors: Subtropics, fronts, barotropy.

1964 MAHER, J.V., & McRAE, J.N. |/X|
Upper wind statistics, Australia. Surface to 55,000 ft., June 1957- May 1961.
Australian Bureau of Meteorology, meteorological summary No. 2.

The purpose of this publication is to make available in a compact form a comprehensive description of the upper winds over Australia. This has been done by tabulating estimates of a series of basic parameters of the wind distribution at various levels to 55,000 feet for some 23 stations.

1964 SPILLANE, K.T. |/J/P/V|
A Survey of the Sub-Tropical Jet Stream and Clear Air Turbulence Models.
Paper I, Project TOPCAT
Australian Bureau of Meteorology

Statistical analyses of clear air turbulence are presented and some models are discussed.

1964 WHITTINGHAM, H.E. |/W|
Extreme Wind Gusts in Australia.
Australian Bureau of Meteorology
Bulletin No.46
NTIS: N67-26138

This paper reviews work done to date on extreme wind gusts and presents analysis of various features of extreme wind gusts in Australia.

1965 BARNARD, J.M.H., & BRUCE, G.P., & GEE, S.
Gust manoeuvre spectra on the empennage of the Winjeel Trainer aircraft.
A.R.L. Structures and Materials Note 296.
SR 39310

Flight tests were performed on a RAAF Winjeel trainer aircraft to provide data for life calculations on the fin, tailplane, and rear fuselage. High frequency oscillations during spins and spiral dives contribute most of the damage. Gust loading has only been estimated using Bullen's (1958) summary of data in CP419 - "Distribution of gusts in the atmosphere: An integration of U.K. and U.S. data."

1965 BUREAU OF METEOROLOGY |/T|
Tropical cyclones in the Northeastern and Northwestern Australian regions for 1962-1963 season.
Australia. Bureau of Meteorology, Meteorological Summary.

Descriptors: wind, tropical cyclones, hurricanes.

1965 BURNS, A., & RIDER, C.K. |/J/P/V|
Power spectral measurements of clear air turbulence associated with jet streams.
Royal Aircraft Establishment Tech. Report No. 65210
NTIS: N67-35139

Power spectral data collected during Project TOPCAT are examined. Measurements of moderately severe Clear Air Turbulence were obtained.

1965 CROOKS, W. |/G/J|
High Altitude Clear Air Turbulence
Lockheed-California Company
Tech. Report No. AFFDL-TR-65-144

The accomplishments and results of the HICAT program are described. The data were collected by a U2 aircraft over America.

1965 REITER, E.R., & BURNS, A. |/J/U|
Atmospheric Structure and Clear Air Turbulence.
Colorado State University
Atmospheric Science Technical Paper No.65

Measurements of Clear Air Turbulence spectra over Australia are used to examine the existence of a wavelength region in which the atmosphere receives turbulent energy.

1965 ROMANOV, I.A. |/W|
Karty divergentsii i zavikhrennosti rezul'tiruiushchei skorosti vetra nad Indiiskim okeanom. [Charts of divergence and vorticity of resultant wind velocity over the Indian Ocean.]
Akademiia Nauk SSSR. Institut Okeanologii, Trudy, 78:119-127, 1965. English summary p.126. DAS P Collection, DLC.

Mean resultant wind divergence and vorticity charts for 4 months were constructed on the basis of wind data from the Dutch and English meteorological atlases. The charts are compared with those formerly published (Riehi, Mintz, Dijk). Divergence and vorticity geographical distribution over the Indian Ocean is discussed.

1965 SPILLANE, K.T. |/J/P|
The Winter Jet Stream of Australia and its Turbulence.
Shell Aviation News, No. 330

In this report the Australian Winter Jet Stream and its turbulence are examined.

1965 VISICK, J. |/E/N/O|
Variation of flight loads on a Viscount Aircraft due to route, month and altitude.
A.R.L. Report SM.308

An average gust spectrum for Australia is constructed using seven months (686 Flying hours) of data. Seasonal and route effects are analysed and trends are established. The gust frequency is found to decrease with an increase in altitude. The counting accelerometer enabled counts in 5000ft height bands up to about 25000ft to be obtained. Results are expressed as exceedances of both acceleration increments and vertical gust velocity.

1966 BULLEN, N.I. |/E|
A review of counting accelerometer data on aircraft gust loads.
Royal Aircraft Establishment, Technical report No. 66234.

Counting accelerometer data collected over a period of several years on a number of passanger transport aircraft are summarized and the derived gust frequency distributions studied. The intensity of the turbulence encountered is compared with that observed by research aircraft in storms and clear air. The only Australian data included in this report are the QANTAS Super Constellation data already reported by Heath-Smith (1959), and the 17 hours of routine flights carried out during project TOPCAT, and reported by Wells (1966).

1966 CLARKE, R.H. |/J/P/X|
Turbulence and the Detailed Structure of a Subtropical Jet Stream.
Journal of Atmospheric Sciences, Vol. 23, No.5, pp516-530

Serial soundings are analysed to estimate stress, eddy viscosity and viscous dissipation in the Jet Stream.

1966 CUMMING, R.W., LENNOX, D., & MELBOURNE, W.H. |/Y|
An Assessment of the Causes of Undershooting on Runway 26 Royal Australian Naval Air
Station, Nowra, N.S.W.
A.R.L., Aerodynamics Tech. Memo. 218 (R)

This report concludes that the cause of undershooting on runway 26, R.A.N. Air station, Nowra, N.S.W., are to downdrafts in the approach area and misleading visual clues.

1966 CURNOW, R. |/J|
Upper atmosphere turbulence - a review.
Weapons Research Establishment, Australia. Rept. No. WRE-PAD-118.
NTIS: N67-17311

Descriptors: atmospheric turbulence, upper atmosphere, energy.

1966 FODEN, P.J. |/B|
Flight load spectra for Beaver Aircraft on agricultural operations.
A.R.L. Note SM.312

Flight load data covering 4.5 hours of a Beaver aircraft's agricultural operations are analysed.

1966 MAHER, J.V., & McRAE, J.N. |/X|
Upper air statistics, Australia. Temperature, humidity and geopotential surface to 60mb, 0400 GMT, 1953-1956.
Australian Bureau of Meteorology, meteorological summary No. 2.

Monthly means, standard deviations, skewness and excess of kurtosis are given for pressure and temperature at the surface, geopotential at 1000mb and geopotential and temperature at the 900, 850, 800, 700, 600, 500, 400, 300, 200, 150, 100, 80 and 60 mb. The statistics refer to observations made at 0400 GMT during the period 1953-56 at 18 Australian radiosonde stations. The monthly median values of mixing ratio at the surface, 900, 850, 800, 700 and 600 mb pressure surfaces are also given.

1966 NILSSON, S.I.
An examination of the precision and constancy of fatigue meters.
A.R.L. Note SM.315

The variability in the counting thresholds of fatigue meters is examined.

1966 REITER, E.R. |/J|
Clear Air Turbulence: Problems and Solutions. (A State of the Art Report)
1966 ION-SAE Clear Air Turbulence Conference Proceedings.

The author explains the problems and the known solutions to CAT as seen at the time of writing.

1966 REITER, E.R., & BURNS, A. |/J|
The Structure of Clear-Air Turbulence Derived from "TOPCAT" Aircraft Measurements.
Journal of Atmospheric Sciences, Vol. 23,No.2,pp206-212

The analysis of measurements collected by TOPCAT, reveals a wavelength region in which the atmosphere receives turbulent energy. This is suggested to stem from gravitational shear waves.

1966 ROFE, B. |/X|
The statospheric and mesospheric circulation at mid-latitude of the southern hemisphere.
Weapons Research Establishment, Technical Note PAD 115.
SWM31461U

An analysis of winds at Australian stations in the lower stratosphere is made.

1966 VISICK, J. |/B|
Loading Actions on an Agricultural "Prospector" Aircraft.
A.R.L. Note SM. 309

This note examines some of the flight loads encountered by an aircraft during agricultural dusting and spraying operations.

1966 WELLS, E.W. |/G|
Project TOPCAT: Summary of meteorological observations and aircraft measurements during routine flights in the Australian Jet stream.
Royal Aircraft Establishment, UK. Rept. No. TR-66122.
NTIS: AD-640 375

A number of flights were made over set tracks and heights to measure clear air turbulence in the vicinity of the Flinders Ranges in South Australia.

1967a CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al |/G/J|
Project HICAT, An Investigation of High Altitude Clear Air Turbulence.
Lockheed-California Company
Technical Report AFFDL-TR-67-123
Volume I

A program to determine statistical characteristics of high altitude CAT so as to improve structural design criteria. A span of 29.2 hours of Australian data is recorded and analysed.

1967b CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al |/G/J|
Project HICAT, An Investigation of High Altitude Clear Air Turbulence.
Lockheed-California Company
Technical Report AFFDL-TR-67-123
Volume II

See Crooks et al 1967a.

1967c CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al |/G/J|
Project HICAT, An investigation of High Altitude Clear Air Turbulence.
Lockheed-California Company
Technical Report AFFDL-TR-67-123
Volume III

See Crooks et al 1967a.

1967 DEACON, E.L. & STEVENSON, J. |/W|
Radiation and associated observations made on Indian Ocean cruises. Cruises During 1962.
CSIRO, Div. of Meteorological Physics, Technical Paper 16.
NTIS: PB-180 799

Measurements of the global radiation (short wave and short wave plus long wave), sea surface and air temperatures, cloud amount and type and wind speed, made on two cruises in the Indian Ocean, are tabulated.

1967 FODEN, P.J. |/B|
Agricultural Aircraft Flight Loads: Typical Spectra and Some Observations on Airworthiness.
5th I.C.A.F.Symposium, A.R.L.
NTIS: N68-28994

A mean agricultural flight load spectrum is constructed. The pilot is used as one of the parameters instead of time, and a gust spectrum for altitudes of less than 100 feet is given.

1967 FODEN, P.J.
"Aircraft fatigue design, Operational and economic aspects".
5th I.C.A.F.Symposium

Aircraft fatigue design, operational and economic aspects.

1967 HUNTER, P.A. |/D|
Initial VGH data on operations of small turbojets in commercial transport service.
Jnl. Aircraft V4N6 pp513-517

The results of VGH data collected by seven small turbojet aircraft show little variation from those collected by larger four engined transports. Airlines coded E and F in the paper are Australian internal airlines operating Boeing 727's. 879 hours of Vgh data has been analysed but unfortunately no height breakdown of turbulence has been included.

1967 HUNTER, P.A. & FETNER, M.W. |/D|
Initial samples of VGH operational data from one type of light turbojet transport airplane.
NASA Langley Working Paper 414 (SR81256)

The results of VGH operational data collected by four companies using the same type of aircraft are presented. Operators C and D are Australian airlines. This report includes the first 596 hours of Vgh data from the B727's and includes a height breakdown of gust velocities encountered up to 40000ft.

1967 LABETT, E.T. |/F|
The New Zealand light aircraft fatigue meter program.
Aircraft Fatigue, Design, Operational and Economic Aspects
Proceedings of the Fifth ICAF Symposium held in Melbourne, May 1967.
Edited by J.Y. Mann, and I.S. Milligan
Pergamon press, Australia.

Fatigue Meters have been installed in eight topdressing and three non-agricultural aircraft. Total recording time is 3,600 hours. The Meters record exceedings of eight vertical acceleration levels ranging from -0.5 to +3.5g.

1967 PHILLPOT, H.R. |/K|
Selected surface climatic data for Antarctic stations.
Bureau of Meteorology, Australia. Melbourne July, 1967.

As part of a study of the synoptic climatology of the Antarctic, the Author has collated a large volume of observations on pressure, temperature and wind at surface level, and also on total cloud cover, obtained from stations in the Antarctic area.

1967 REITER, E.R., & FOLTZ, H.P. |/J/V|
The prediction of clear-air turbulence over mountainous terrain.
American Institute of Aeronautics and Astronautics.
Paper No. 67-184
Journal of Applied Meteorology
Vol 6, No.3 pp 549-556, June 1967.

Using the theory of the break-up of waves into turbulent eddies, a model is built to predict CAT over mountainous areas.

1967 RIDER, C.K. |/J/U|
Project TOPCAT: A study of the Gust Velocity Power Spectra for Six Flights in Clear Air Turbulence.
A.R.L. Report SM. 317

Gust velocity measurements are examined to see if they can be described by a consistent set of parameters.

1967 SPILLANE, K.T. |/G/J/P|
Clear Air Turbulence and Supersonic Transport
NATURE, VOL. 214, April 15, 1967., pg 237-239

Flight data collected by Jindivik target aircraft near the Jet Stream over the Woomera area, are analysed.

1967 TRAILL-NASH, R.W., CHANDIVERT, M.S. |/H|
Calculated Transfer Functions for the Canberra Aircraft Used in Project TOPCAT.
A.R.L. SM. Tech. Memo. 158

This report gives calculated transfer functions for the Canberra Aircraft used in project TOPCAT.

1967 TRAYFORD, R.S. |/B|
Flight Load Spectra and Strain Prediction Equations for Ceres Aircraft.
A.R.L. Flight Note 41
NTIS: N68-28270

Flight load data from Ceres aircraft covering 20 flying hours of agricultural operations are presented.

1967a U.S. NAVAL WEATHER SERVICE |/K|
U.S. Naval Weather Service World-wide airfield summaries. Volume V: Australia, South Pacific, Antarctica.
Environmental Technical Applications Center (Air Force).
NTIS: AD-662 648

Climatological summaries for selected airfields and for the climatic areas in which they are located.

1967b U.S. NAVAL WEATHER SERVICE |/K|
World wide airfield summaries, volume V, Australia-South pacific- Antarctica.
AD662648

This volume provides climatological summaries for airfields and climatic areas in Australia, South Pacific Islands, and Antarctica.

1967 YOSHIDA, K.
An assessment of the transport of momentum in the Australian sector of the Southern Hemisphere.
International Antarctic Meteorological Research Centre, Technical Report No. 7.
Issued by the Australian Bureau of Meteorology.

The meridional transport of relative zonal momentum in the troposphere and stratosphere, and the meridional mass transport in the troposphere, in the Australian region have been examined using four years data.

1968 BROOK, R.R., & SPILLANE, K.T. |/W/Y|
Vertical Wind Shear in the Boundary Layer at Melbourne Airport.
Commonwealth Bureau of Meteorology, Melbourne.

This report summarises the conclusions reached in past studies of the atmospheric boundary layer at Melbourne Airport, which have to be taken into account in the problem of automatic take-off and landing systems.

1968 BRUCE, G.P. |/F/N/O|
Seasonal variations and the effect of mode of operation on flight loads on DC-3 Aircraft.
A.R.L. Note SM.329

Fatigue meter data collected by two DC-3 aircraft in 1956 are analysed. The data consists of 2783 hours of airline flying and 394 hours of aerial surveying. The analysis indicates that the frequency of loads experienced on coastal routes was half of that found on inland routes, and that gusts in summer were four times as frequent as in winter.

1968a BUREAU OF METEOROLOGY |/T|
Tropical cyclones in the Northern Australian regions, 1964-65 season.
Bureau of Meteorology, Australia.
NTIS: N68-30735

Descriptors: cyclones, tropical meteorology, tropical storms, rain, wind pressure.

1968b BUREAU OF METEOROLOGY |/T|
Tropical cyclones in the Northern Australian regions, 1965-66 season.
Bureau of Meteorology, Australia.
NTIS: N68-33552

Descriptors: cyclones, tropical meteorology, tropical storms, rain and wind pressure.

1968 BURNHAM, J.
Atmospheric turbulence and the SST: A review in the light of recent research.
Royal Aircraft Establishment, Technical Report 68096.

Atmospheric turbulence problems which may be met by an SST are considered in the light of the results of high altitude turbulence research programmes recently conducted in the U.K. and U.S.A.. Australian data from project HICAT and the Jindivik experiment (*see Spillane & Radok, 1971*) are considered. Although it appears that turbulence in the stratosphere is less widespread than at lower altitudes, up to 15% of the time, at altitudes up to 60000 ft, may be spent in noticeable turbulence in some regions at certain times of the year.

1968 COMMANDER FAR EAST FLEET |/K|
Climatological data - Eastern Australia.
Commander Far East Fleet, CINCFE-0070/25, Confidential.
NR08242C

Descriptors: Climatology, temperature, wind velocity, cloud cover, pressure.

1968 ENDLICH, R.M. & MANCUSO, R.L.
The turbulence climatology of the United States between 20,000 and 45,000 feet, estimated from aircraft reports and meteorological data.
Stanford Research Institute. California
AFCRL-68-0337, AD-672-988

For the United States the climatology of clear air turbulence is defined as the likelihood that an aircraft will encounter turbulent air at a given locality, altitude, and time of year. Turbulence reports from pilots collected during special five-day reporting periods comprise by far the largest volume of data available. Meteorological conditions were correlated with the turbulence reports. The correlations show that the vertical vector wind shear corresponds most closely to turbulence frequency determined from the pilot reports. In summer a different regression equation was found to that in other seasons.

1968 KEPERT, J.L., & RIDER, C.K. |/A|
Accident to Winjeel A85-416 near Drysdale, Victoria on 3rd May, 1968.
A.R.L. Applied Note 4. (R)

The weather is analysed, to see if the accident to the Winjeel aircraft near Drysdale, Victoria on the 3rd May, 1968 could have been caused by turbulence together with an asymmetric manoeuvre.

1968 PATTERSON, A.K. |/B|
A statistical study of flight loads on a Cropmaster agricultural aircraft.
A.R.L. Report SM.320
NTIS: N69-11199

A statistical analysis of load measurements data obtained from a Cropmaster agricultural aircraft.

1968 POWELL, F.A. |/J|
An Evaluation of Stratospheric CAT Forecasts for Mid Latitudes.
Australian Meteorological Magazine, Vol.16, No.2, pp35-46

An example of the method used to forecast clear air turbulence in project HICAT is given.

1968 SPILLANE, K.T., & BROOK, R.R. |/W/Y|
Vertical Wind Shear in the Boundary Layer at Melbourne Airport.
W.M.O., Aeronautical Meteorology
Tech. Note No.95
W.M.O.-No.227.TP.121

See report under Brook & Spillane 1968.

1968 SWINBANK, W.C. & DYER, A.J. |/W|
Micrometeorological expeditions 1962-1964.
CSIRO, Div. of Meteorological Physics, Technical Paper 17.
NTIS: PB-182 244

During the years 1962-1964 five expeditions were undertaken at two specially selected sites for the purpose of acquiring high quality observations of the vertical distributions of wind, temperature, and humidity in the 16m of air above the ground surface.

1968 TAYLOR, R.J., WARNER, J., & BACON, N.B. |/G/L|
An Analysis of some Observations of Vertical Air Velocity Components made from an Aircraft.
Uni. of Melbourne, Met. Dept. Publication No. 10

An analysis of observations of vertical air velocity components made from an aircraft at heights from 10m to 1310m.

1968 WEINERT, R.A. |/P|
Statistics of the subtropical jet stream over the Australian region.
Australian Meteorological Magazine, Vol 16, No 4, 1968, pp137-148.

The position and structure of the lowest latitude maximum wind speed in the westerlies over the Australian region at the 200 mb level (referred to here as the subtropical jet axis) are investigated for all months for the period 1956 to 1961. July is the month of highest mean core speed (140 kt), and January and February the months of lowest core speed (70 kt), with a period of steady rise or fall between these extremes. May is the month of steepest rise and November that of steepest decline in the mean speed.

1969 AGE NEWSPAPER, MELBOURNE |/R|
"30 minutes of chaos and devastation".
The Age Newspaper, Friday 12, December 1969. Melbourne.

Thunderstorm wind gusts caused severe damage in Melbourne's Southern suburbs, especially St. Kilda, Moorabbin, and Glen Waverley.

1969 AUSTRALIAN NEWSPAPER |/A/R|
"High wind damages aircraft".
The Australian Newspaper, Mon. 8, Dec. 1969.

Wind gusts of more than 70 mph swept two Bristol freighters 100ft along the tarmac at Archerfield Aerodrome, near Brisbane, and caused damage estimated at $100,000. The storm was one of a series that tore through south east Queensland late on Sunday 7th December 1969.

1969 BERSON, F.A. |/R|
Fallout from storm anvils.
Australian Meteorological Magazine, 17(3):113-133, Sept. 1969.
MGA21120395

Radar echoes from thunderstorms in Brisbane, Australia.

1969 BILHAM, B.W. |/F|
Analysis of flight loads data from Piaggio P.166 aircraft in Australian airline service.
Civil Aviation Dept. (Australia), Aeronautical Engineering Report SM-53.
SR61738

Descriptors: Aircraft.

1969 GENTILLI, J. |/M|
Some regional aspects of southerly buster phenomena.
Weather, London, 24(5):173-180, May 1969.
MGA21030621

Descriptors: Buster wind; New South Wales, Australia.

1969 HERALD NEWSPAPER, MELBOURNE |/A|
"Rough air traps 23 airliners"
The Herald Newspaper, Saturday 15, Feb. 1969. Melbourne.

An estimated 23 commercial airliner crashes in the past 10 years have been caused by clear air turbulence. The Aeronautical Research Laboratories at Fishermen's Bend is continuing its research program into C.A.T. using a specially equipped Mirage fighter, which spent most of 1968 seeking the turbulence between 5000 ft. and 35,000 ft. while based at Avalon.

1969 SPILLANE, K.T. |/J|
Synoptic and Structural Analysis of TOPCAT Flight situations.
Project TOPCAT, Meteorological Reports No. XII
Met. Dept., Uni. of Melb., Publication No.12

Data from TOPCAT are presented, together with estimates of their resolution in space and time.

1969 U.S.A.F. WEATHER WING |/K|
Climatology for asian and pacific visits.
Weather Wing (1st) San Francisco Calif 96553 Detachment 4.
NTIS: AD-686 798

The document contains mean monthly or seasonal meteorological parameters for selected countries and was prepared primarily as a planning guide for staff visits.

1969 WELLS, E.W. |/G|
Low altitude turbulence measurements over land and sea during flights in a Canberra aircraft.
Aeronautical Research Council, Current Papers 1081.
SR61617, SR61825A

Descriptors: Wind, turbulence.

1970 BERSON, F.A. & LAMOND, M.H. |/M/R|
Radar observations of wave perturbations in a low level windsurge.
Australian Meteorological Magazine, Melbourne, 18(2):74-93,June 1970.
MGA22100291

Radar observations of CAT.

1970 BROOK, R.R. |/W/Y|
Preliminary Study of Wind Shear in the Boundary Layer at Melbourne Airport (Tullamarine).
Bureau of Meteorology, Study No. 19
NTIS: N70-30146

This report studies the wind shear near Melbourne airport by analysing differences of wind speed between 50ft and 150ft.

1970 BROOKFIELD, M. |/W|
Winds of arid Australia.
CSIRO, Div. of Land Research, Technical Paper No.30.
MGA22090309

Descriptors: Wind regime.

1970 FUJITA, T. T. |/S|
Estimate of maximum wind speeds of tornadoes in three Northwestern states.
Chicago Uni. USA. Dept. of the Geophysical Sciences. Rept. No. RP-92.
NTIS: COM-71-00731

Maximum wind speeds of potential tornadoes are estimated.

1970 HACIA, H. |/I|
An annotated bibliography of climatic atlases and charts of the World. Volume I: Land areas.
Environmental Data Service, Silver Spring, Md., Rpt. No. EDS-BM-79-Vol-1.
NTIS: PB-193 287.

Descriptors: World, hemispheres and regions, continents.

1970 McRAE, J.N. |/X|
Statistics on the Spatial and Temporal Variation of Wind in the Australian Region.
Bureau of Meteorology,Australia.
NTIS: N72-15570

Data from balloon/radar winds.

1970 PLUSS, D.H. |/J/V|
Clear Air Turbulence encountered in mountain waves.
Australian Bureau of Meteorology, Meteorological Note 44, Nov. 1970.

Under favourable conditions a "wave like" flow develops in an airstream after traversing a mountain barrier. The most severe areas of turbulence associated with this phenomenon are in the vicinity of rotor clouds which form in standing eddies under the wave crests at altitudes comparable with the barrier height.

1970 TAYLOR, R.J., WARNER, J., & BACON, N.E. |/J/U|
Scale length in atmospheric turbulence as measured from an aircraft.
Quart.J.R.Met.Soc. (1970), Vol. 96, pp750-755

Variation of turbulence scale with altitude, using the data from Taylor et al, 1968.

1970 VEAZEY, D.R. |/I/J|
A Literature Survey of Clear Air Turbulence
Texas A & M University, N70-32002

A literature survey and summary of Clear Air Turbulence.

1970 WALLINGTON, C.E. |/V|
A computing aid to studies of airflow over mountains.
Meteorological Magazine (London) Vol. 99, pp. 157-165.

A method is described for using a high speed computer to compute and ploc flow patterns and orographic cloud over and in lee of given high ground profiles.

1971 BERSON, F.A. |/R|
A radar-statistical analysis of non-frontal thunderstorms.
C.S.I.R.O., Division of Meteorological Physics, Technical Paper No. 20.
ISBN-0643006494; NTIS- N71-38193, PB-203 264; MGA23050274

Descriptors: thunderstorms, convective, statistical investigation, applications of in radar signals.

1971 BROOK, R.R. & COLEMAN, F.
An experimental study of the spatial variation of mean wind velocity at Melbourne Airport (Tullamarine).
Commonwealth Bureau of Meteorology. Working paper No. 135.
ISBN-0642953775

Descriptors: Melbourne Airport (Tullamarine), winds, speed, velocity.

1971a BUREAU OF METEOROLOGY |/K|
Climatic survey Esperance region 5 - Western Australia.
Bureau of Meteorology
SRB0597

Descriptors: Meteorology, climate, surveys, data, rainfall, temperature, humidity, evaporation, wind, clouds.

1971b BUREAU OF METEOROLOGY |/K|
Climatic survey of Adelaide. Region 1 - South Australia.
Bureau of Meteorology, Australia, June 1971.
SWM18762U

Descriptors: Meteorology, climate, clouds, droughts, evaporation, floods, rainfall, solar radiation, temperature, wind.

1971 KAYNES, I.W. |/E|
Gust loads on Comet aircraft.
Royal Aircraft Establishment, Technical Report 71165, August, 1971.

Counting accelerometers have been used to record normal accelerations on BOAC Comet 4 and RAF Comet 4C aircraft. Revised data for the BOAC Comet 1 and RAF Comet 2 are presented. Some 49000 n miles of data (approx 116 hours) covering the Australian region are included but no indication of the regional breakdown of turbulent counts is included in this report.

1971 McRAE, J.N. |/X|
Statistics on variability of temperatures and geopotential, Australia. Surface to 100mb.
Bureau of Meteorology, Australia. Meteorological Summary No.11.

Statistics, by seasons and for the total period, which in most cases is 1953 to 1956, relating to the variation of temperature and geopotential in the vertical and on constant pressure surfaces are presented for upper air stations in the Australian region.

1971 PECKHAM, C.G. |/D/E|
A summary of atmospheric turbulence recorded by NATO aircraft.
Technology Incorporated, Dayton, Ohio, USA.
AGARD Report No. 586

This report summarises 150,000 hours of turbulence data available on magnetic tape. The data are mainly from NATO countries but include 1185 hours of Comet 4 data, 1346 hours of Bristol data, and 2240 hours of 707 data. Some (but only a small part) of each of these sections of data cover the Australian region. It is not clear whether the Australian data are available separate from the other regions involved.

1971 RADOK, U. |/P/K|
The Australian region and the general circulation of the Southern Hemisphere.
World Survey of Climatology, Volume 13,
Climates of Australia and New Zealand, Chapter 3.
Elsevier Publishing Company, Amsterdam, 1971.

Includes a discussion of the jet stream over Australia and the upper air flow over the Australian region.

1971 RAMANO, D. |/P|
Some aspects of jet stream clouds as observed on APT satellite data in the Australian region.
Proceedings Boston, American Meteorological Society, 1971, p 300-305.
MGA 2308030

Jet stream cloud formation, Wind estimation from satellite cloud photographs.

1971 RIDER, C.K., & THOMSON, M.R. |/G/J|
Clear Air Turbulence in the Australian Stratosphere.
A.R.L. Note SM.362
NTIS: N71-33671

The data collected from four flights of a U2 aircraft in the stratosphere are analysed for CAT.

1971 RIDER, C.K., THOMSON, M.R., & VERINDER, F.E. |/G/U|
Measurement of Extreme Mechanical Turbulence During Low Level Flights By Mirage A3-76
A.R.L. Report SM.333

Extreme mechanical turbulence during low level flights by Mirage A3-76 is measured. The measurements span five hours.

1971 SPILLANE, K.T., & RADOK, U. |/G/J|
A Single-Station Analysis of Clear Air Turbulence and Related Atmospheric Structure.
Bureau of Meteorology, Meteorological Study 20, Nov 1971.
NTIS: N72-22599

The theoretical analysis of CAT provided by Pilotless aircraft near Woomera is compared with readings obtained by Canberra aircraft during project TOPCAT. Flights extended up to nearly 60000ft and showed a high incidence of CAT in the 50-55000ft band. They also indicated cellular convection effects in clear air extending to near jet stream levels and contributing significantly to the incidence of aeronautical turbulence. About 56 hours of data are tabulated but no details of turbulence other than CAT is given.

1971 SPILLANE, K.T. |/F/J/N/O|
Regional Incidence of Cat and the Meteorological Interpretation of Routine Flight Load Records.
Bureau of Meteorology, Meteorological Study 21, Nov 1971.
NTIS: N72-22598

Seasonal flight loads recorded on routine operations by an F27 aircraft in Western Australia are examined at two "g" levels. Fatigue meter data covering 8923 hours are reported and analysed extremely thoroughly on a seasonal basis from an expert meteorologists point of view. Previously reported fatigue meter data are also reviewed. Seasonal peaks in gust loads are possibly due to summer thunderstorms in northern latitudes and to a small amount of short length scale CAT associated with rapid changes in position of the jet stream core.

1972 ABBEY, R.F.,Jr. |/X|
Spectra of atmospheric motions in the upper-troposphere and lower stratosphere over North America and Australia: experimental results and theoretical considerations.
Colorado. State Univ., Ft. Collins. Dept. of Atmospheric Sciences, Atmospheric Papers, No. 211, July 1972.
MGA25080333, NTIS:TID 26544.

Spectral analyses of winds around 30,000ft and 40,000ft are compared in U.S. and Australia. Wide variations in spectra for different years occur over Australia, probably due to a lack of an orographic anchoring effect.

1972 BIRCH, R.L. |/R|
Some typical features of radar-observed severe storms at Brisbane.
Australian Bureau of Meteorology, Meteorological Note 59, July 1972.

Large convective storms in the vicinity of Brisbane, observed on the airport WF44 weather radar, have been examined with a view to typifying dimensions, movement and distribution.

1972 BLACKMAN, D.R. |/W|
Observation of the profile of the wind over suburban roughness.
M.M.E.R. 11

Measurements of the wind blowing over a typical Australian suburban development are taken up to 30m height. The wind profile is then fitted to a power law representation.

1972a BUREAU OF METEOROLOGY |/K|
Meteorology: Macquarie Island, Mawson and Wilkes, 1968.
Australian Bureau of Meteorology. Rept No: PUBL-118.
NTIS: N74-12306

Climatological summaries are presented for Macquarie Island, Mawson, and Wilkes for 1968.

1972b BUREAU OF METEOROLOGY |/K|
Climatic survey northwest region 6 - Western Australia.
Australian Government Publishing Service, Canberra Feb 72.
SR; 551.58(94)/BUR, SRB0718

Descriptors: Rainfall, temperature, humidity, wind, storms, clouds, cyclones, floods, evaporation.

1972 CLARKE, R.H.
Vertical propagation of angular momentum in the west wind belts.
Royal Meteorological Society, Bracknell, Eng., Quarterly Journal, 98(417): 617-626.
MGA24040245

Boundary layer data from the Wangara expedition show that, at a point in the mean winter west wind belt (but near its equatorial limit), eddies on the synoptic scale (periods greater than a day) transferred westerly momentum upward.

1972 COLEMAN, F. |/T|
Frequencies, tracks and intensities of tropical cyclones in the Australian region 1909 to 1969.
Bureau of Meteorology, Australia.
NTIS: N73-10608

Statistical data of tropical cyclones in the Australian region east of the 135E meridian from November 1909 to June 1969 and west of the 135E meridian from November 1919 to June 1969 are investigated.

1972 FALLS, R. |/Q|
Some notes on the onset of summer monsoon disturbances in north Australia.
World Meteorological Organization, Geneva, WMO-No. 321, p.395-402.
MGA24090204

Mechanisms that initiate tropical rain-producing disturbances, particularly during the spring transition and early monsoon season in North Australia are discussed.

1972 FUJITA, T. T. |/S|
Estimate of maximum windspeeds of tornadoes in southernmost Rockies.
Chicago, Univ. Dept. of the Geophysical Sciences, Satellite and Mesometeorology Research Project Research Paper No. 105.
MGA24010252

The United States is No. 1 in both tornado frequency and intensity, followed by India, Canada, Europe, Australia, Japan, New Zealand, etc. An attempt was made to draw contour lines of the maximum tornado intensity on a world map.

1972a KAYNES, I.W. |/E|
A summary of the analysis of gust loads recorded by counting accelerometers on seventeen types of aircraft.
Royal Aircraft Establishment, Farnborough, United Kingdom.
AGARD Report No. 605, addendum to AGARD Report No. 586.

Kaynes indicates that individual flight data are available including fleet, particular aircraft within fleet, route, month and year of flight and take-off weight. In Peckham's report: a) The Bristol data was for N.Z., presumably the data reported by Heath-Smith in 1958. b) The Comet 4 data were for BOAC aircraft. c) The B707 data was for BOAC aircraft. There is also mention of the QANTAS Superconstellation data (Heath-Smith 1959) and 943 hours of NZ NAC Viscount data. All data have been presented using both discrete gust and simple power spectral methods of analysis.

1972b KAYNES, I.W. |/E|
Gust loads on 707 and VC 10 aircraft.
UDC 533.6.048.5, CP No. 1281, August 1972. Replaces RAE Technical Report 72156.

Counting accelerometers have been used to record the centre of gravity normal accelerations on 707 and VC 10 aircraft during passenger services covering 1009700 n miles and 917900 n mile respectively. A significant difference is found between the frequency of loads on two nominally identical 707 aircraft and the relationship of this to differences in autopilot characteristics is discussed. The most severe loads encountered by each aircraft are described. The VC 10 route pattern was basically transatlantic with comparatively short connecting flights in Europe and North America, while the 707's flew on a more wide ranging pattern around the world, including 19 flights (35,900 n miles) in the Australian region. However this report gives no regional break-down of the gust data.

1972 LABY, J.E., & UNTHANK, E.L. |/X|
Stratospheric winds over Australia, 20 degrees S to 40 degrees S, 1966-1972. Final Report.
Melbourne University, Australia, Dept of Physics.
NTIS: NYO-3747-20

Descriptors: aerial monitoring, stratosphere, turbulence, wind.

1972 LLOYD, K.H., LOW, C.H., & VINCENT, R.A. |/J/V|
Turbulence, Billows and Gravity waves in a high shear region of the upper atmosphere.
Weapons Research Establishment, Australia. Rept No. WRE-TN-670(WR/D)
NTIS: N73-11327

Observations on the behaviour of a trail of lithium vapor released on the downleg trajectory from a rocket at Woomera. Very interesting features developed in the trail, especially in a region of high shear at 107km.

1972 NEWELL, R.E., et al. |/K/X|
The general circulation of the tropical atmosphere and interactions with extratropical latitudes. Volume I.
MIT Press, Cambridge Mass. ARL Ref. 551.513(213) GEN I

Contains charts of: major ground contours; quarterly mean temp and U, V wind components at elevations of 1000, 850, 700, 500, 400, 300, 200, 150, 100 mbar levels; mean sea surface temperature for Jan, Apr, Jul, Oct; mean humidity for Jan, Apr, Jul, Oct at 1000, 850, 700, 500, 400 mbar; sea surface currents Jan, Jul; quarterly mean stream lines; summer and winter std. dev. of U, V wind components at 850, 500, 200 mbar.

1972 SMITH, E.J. |/J/V|
Clouds associated with breaking billows in Australia.
Weather, London, 27(10): 412-413
MGA 24080343

A photograph of clouds associated with breaking Kelvin-Helmholtz billows taken at Michell, Queensland is presented.

1972 TAYLOR, R.J. |/U/G|
Aircraft measurements of dissipation of turbulent kinetic energy.
Royal Meteorological Society, Bracknell, Eng., Quarterly Journal, 98(417):658-661.
MGA24040347

Fifty values of the dissipation rate of turbulent kinetic energy, deduced from spectra of vertical air velocity components made from an aircraft are presented.

1972a WARNER, J. |/M|
A frontal surface off the North Queensland Coast.
Australian Meteorological Magazine, Melbourne, 20(2):105-115, 1972.

Descriptors: Fronts on the Queensland coast, trade winds, turbulence.

1972b WARNER, J. |/N|
Structure and intensity of turbulence in air over the sea.
Royal Meteorological Society, Quarterly Journal, 98(415): 175-186, Jan 1972.

Descriptors: Turbulence over seas.

1973 BROOK, R.R. |/W|
Wind Profile Theory and its Relevance to Aviation.
Met. Dept., Uni. of Melb.

Wind profile theory and its relevance to aviation.

1973 BURNS, A. |/J/R|
On the nature of large clear air gusts near storm tops.
Royal Aircraft Establishment, Farnborough, England.
Structures Dept. Report No. ARC-CP-1248; RAE-TR-72036.
NTIS: N74-13402

Detailed analysis of a small patch of severe clear air turbulence recorded in a Canberra aircraft flying in the vicinity of storm tops, in Oklahoma, 1965.

1973 HEALY, T.R. |/X|
Monthly mean wind patterns at 40,000 feet over Australia.
Meteorological Magazine, Bracknell, Eng., 102(1210): 126-140.
MGA24120333

New monthly mean vector-wind charts for 40,000 ft.

1973 HESS, G.D., & CLARKE, R.H. |/W|
Time spectra and cross-spectra of kinetic energy in the planetary boundary layer.
Royal Meteorological Society, Bracknell, Eng., Quarterly Journal, 99(419): 130-153.
MGA24070199

Temporal spectra and cross spectra of the three turbulent wind components for mesosynoptic scales at 250m vertical intervals in the planetary boundary layer are presented.

1973 LLOYD, K.H., LOW, C.H., & VINCENT, R.A. |/V|
Turbulence, billows, and gravity waves in a high shear region of the upper atmosphere.
Planetary and Space Science, Oxford, 21(4): 653-661.
MGA24090308

Measurements on a downleg trail of lithium in morning twilight show definite turbulent features and, also, a wave structure at 107km that could be generated by the intense wind shear. See also 1972 Lloyd et al.

1973 MACNICOL, B., & THOMSON, M.R. |/R|
The Darwin thunderstorm turbulence study, February 1969.
Australian Bureau of Meteorology, Meteorol Study 23.
NTIS: N74-19261

Results of measurements of aeronautical turbulence within tropical thunderstorms are presented and discussed in relation to concurrent 10cm weather radar echoes.

1973 MANN, J.Y. |/F|
A review of Australian Investigations on aircraft fatigue.
Minutes of the Thirteenth Conference of the International Committee on Aeronautical Fatigue, London, July, 1973.
SR74077

The Australian Department of Civil Aviation's contribution indicated that the DCA program of flight loads data acquisition is continuing, accumulating data at the rate of about 10,000 flight hours per year.

1973 NEAL, A.B. |/K|
The meteorology of the Australian trades. Part I. A case Study.
Commonwealth Bureau of Meteorology. Technical Report: 5.
ISBN-0642943435

A brief review is given of the meteorology of clouds in the trade wind zone and a research programme is proposed for the investigation of certain aspects of convection in the Australian trade wind zone.

1973 NOAR, P.F. |/K|
Energy dispersion and other features of the middle latitude circulation in the Australian region.
Australian Bureau of Meteorology, Meteorological Study 24, Feb 1973.

The author traces the evolution of the simplified dispersion equations, and then devotes several chapters to discussion of data and a justification of the use and significance of employing five day smoothing.

1973 RIDER, C.K., SPARROW, J.G., THOMSON, M.R., & VERINDER, F.E. |/H|
Variation in Wing Strains Measured during three low level flights by Mirage A3-76 in severe mechanical turbulence.
A.R.L. Note SM.401

Examination of wing strain measurements (taken in severe turbulence) to derive relationships between wing strain measurements and aircraft centre of gravity acceleration.

1973a SHANAHAN, B.W. |/J|
The Jindivik index as an aid to forecasting Clear Air Turbulence.
Australian Bureau of Meteorology, Meteorological Note 65, April 73.

A nomogram is drawn which indicates the relative significance of the components of the Jindivik Index and the combination of atmospheric parameters most likely to produce turbulence is deduced.

1973b SHANAHAN, B.W. |/A/J|
An incident of extreme turbulence.
Australian Bureau of Meteorology, Meteorological Note 63, April 73.

On November 1971 an aircraft encountered extreme turbulence at 35000ft one hundred miles east of Mt. Gambier. This note documents the meteorological conditions at the time and examines possible causes for the turbulence.

1974 ADVERTISER NEWSPAPER, ADELAIDE. |/A|
11 hurt in jet plunge on way to Adelaide.
The Advertiser Newspaper, Adelaide, October 15, 1974, pp. 1.

Eleven passengers in a TAA jet flying from Perth to Adelaide were injured when the aircraft struck severe turbulence over WA. The jet was about to fly over the Great Australian Bight when the incident occurred. Passengers said the aircraft was still in cloud when it hit the turbulence. The Adelaide Bureau of Meteorology reported thunderstorm activity over the Bight the previous afternoon. A bracket of three seats at the back of the plane was ripped from its mountings. One man was sitting in it.
The turbulence lasted about a minute. The captain said there was no warning of the turbulence.

1974 BARCLAY, P.A. |/R/G|
Aircraft Turbulence Encounters During Commercial Operations in the Vicinity of Thunderstorms
6th Conference on Aerospace Aeronautical Meteorology
Published by Amer. Meteor. Soc., Boston, MA., pp337-360.
Also in Proc. AIRMET Conference, Canberra, 9-10 Feb 1978, pp97-100.

A discussion of thunderstorm avoidance criteria.

1974 BROOK, R.R. |/W|
A Study of Wind Structure in an Urban Environment.
Bureau of Met. Met. Study No. 27
Australia

Presents an analysis of data collected by anemometers and temperature sensors at Melbourne Docks, at heights of up to 118m.

1974 KRUZHKOVA, T.S. & NOVOZHILOVA, N.I. |/K|
Characteristics of spatio-temporal distribution of airflows in the tropical zone of the Southern Hemisphere.
U.S.S.R. Gidrometeorologicheskiy Nauchno-Issledovatel'skiy Tsentr SSSr, Leningrad, Trudy, No. 128, 1974. p. 15-25. Writen in Russian.

The spatio-temporal distribution of atmospheric flows in the tropical zone of the Southern Hemisphere was investigated for the winter season of 1970-1972. In the entire troposphere of the hemisphere, there was distinct evidence of a sector with high velocities-the Australian sector.

1974 LABY, J.E., & UNTHANK, E.L. |/X|
Some Southern Hemispheric measurements of stratospheric winds and their variability.
International Conference on Structure, Composition, and General Circulation of the Upper and Lower Atmospheres, and Possible Anthropogenic Perturbations, Melbourne, Australia, Jan. 14-25, 1974, Proceedings., Toronto, May 1974. Vol. 2, p. 556-566.
MGA27010357

Radar tracked balloon flights were made daily, wind data were obtained from the surface to 130,000ft (40km).

1974 PITTOCK, A.B. |/K|
Global interactions in stratosphere and troposphere.
CSIRO, Div. of Atmos. Phys.
MGA27010226

Significant correlations were found between year-to-year mean latitudes of the surface high pressure belt(L), over eastern Australia and atmospheric parameters, such as winds, and temperatures at various levels in the troposphere and stratosphere.

1974 RIDER, C.K., SPARROW, J.G., & THOMSON, M.R. |/H|
Fin Strains in Mirage A3-76 During Flights in Severe Turbulence.
A.R.L. Note SM. 407 (R)

The Fin strain measurements from 3 flights of Mirage A3-76 are analysed for comparison with mainplane strain measurements.

1974 SHERMAN, D.J. |/V|
Mountain waves and Clear Air Turbulence.
Meteorological Research Institute, Tokyo, Japan. Papers in Meteorology and Geophysics, Vol. 25, No3, pp177-195. September 1974.

It has been observed that high level Clear Air Turbulence (CAT) occurs frequently in places where a fairly strong jet stream crosses a chain of mountains. If a suitable size mountain occurs somewhere in a mountain range, the shear stresses generated by lee waves under conditions of a simple jet stream, and a fairly realistic temperature profile are well able to explain the presence of turbulence. However under these conditions, it is found that strong shear layers occur to very great heights in the atmosphere, whereas much of the data on frequency of occurrence of CAT tends to show lower probabilities of occurrence at higher altitudes.

1974 THOMSON, M.R., & SPARROW, J.G. |/H|
Wing Strain Measurements from Nine Flights of Mirage A3-76 in Turbulence.
A.R.L. Note SM.403 (R)

Nine flights by Mirage A3-76 are analysed to study aircraft response.

1974 VICTORIAN YEAR BOOK |/K/R/S|
Meteorology in Victoria
Victorian year book, "Meteorology in Victoria", pp. 1-28.

Includes details of a number of severe storms and gales which have occurred in Victoria.

1975 AGE NEWSPAPER, MELBOURNE |/R/S|
"Can your house weather a wild storm?"
The Age, Wednesday, January 8, 1975. Melbourne.

The Victorian regional director of the Bureau of Meteorology said that Victoria is hit by tornadoes and thunderstorms which could be more destructive than tropical cyclones on a very small scale, and gales, which could cause tremendous damage over a much wider area than a tropical cyclone.
The 1974 Victorian Year Book recounts some of the most devastating of these phenomena this century. The most famous was the "Sandringham tornado" of 1918, in which the wind was estimated to have reached speeds of 320 km/h. by observers. Also in 1960, a tornado unroofed more that 50 buildings at Numurkah, north of the ranges. Severe thunderstorms, with sudden wind gusts caused by downdraughts, and gale force winds whipped up by extratropical cyclones at sea are also a threat. A map shows the path of Melbourne's worst storms and when they occurred.

1975 BUREAU OF METEOROLOGY |/T|
Tropical cyclones in the northern Australian regions, 1971-1972.
Australian Govt. Publ. Serv.,
"Meteorological summary"
MGA27070228

This publication contains case histories of each of the tropical cyclones that occurred in the northern Australian regions in the the 1971-1972 season.

1975a COLQUHOUN, J.R. |/R|
The velocity and structure of thunderstorms in the severe stage.
Australian Bureau of Meteorology, Technical Report 15.
ISBN-0642933146

The velocity of thunderstorms, may be reliably estimated by a method which uses the vertical wind profile in the storm's environment between the surface and 450 mb.

1975b COLQUHOUN, J.R. |/R|
Method of estimating the velocity of severe thunderstorms.
Australian Meteorological Magazine, Melbourne, 23(4): 99-107, Dec. 1975.
MGA28060263

Ludlam's (1961) severe local storm model is extended to three dimensions.

1975 DeANGELIS, D. |/T|
World of tropical cyclones.
Mariners Weather Log, Wash., D.C., 19(6): 337-345.
MGA27070230, NTIS: PB-248-452-11-2

Data on monthly and annual number of storms per year for each major basin and maps showing the average number of cyclones per 5 degree square and preferred storm tracks for tropical cyclones are presented.

1975 GRIMSHAW, R.H.J. |/V|
Nonlinear internal gravity waves and their interaction with the mean wind.
University of Melbourne, School of Mathematical Sciences. Report No.2, 1975.
ISBN-0868900435

Descriptors: Gravity waves, internal gravity, wave mechanics, interaction with winds, mean.

1975 MACKERRAS, D. & PRENTICE, S.A. |/I/R|
Bibliography on lightning and thunderstorms.
University of Queensland, Dept. of Electrical Engineering.
ISBN-0909892474

Descriptors: bibliography, thunderstorms, lightning.

1975 MANN, J.Y. |/F|
A review of Australian investigations on aircraft fatigue.
Minutes of the Fourteenth Conference of the International Committee on Aeronautical Fatigue, Lausanne, May 1975.
ICAF Doc. No. 800

This contribution by the Australian Department of Transport summarises their flight loads data acquisition program.Recorded data now covered over 113,000 hours flying for 57 different aircraft of 33 basic types. Loads spectra for the various classes of aircraft (single engine, twins, pressurised, etc.) are given.

1975 PADYA, B.M. |/T|
Spatial variability and gustiness of cyclone winds: Gervaise, Mauritius, February 1975.
Aust. Meteorol. Mag. 23(3) 61-9 1 ref 1975.

Descriptors: winds, velocity, gustiness: cyclone Gervaise, Mauritius.

1975 ROYAL AUSTRALIAN AIR FORCE |/R|
The way the winds blow.
Royal Australian Air Force, Directorate of Air Force Safety, Flying Safety Spotlight No. 7/75
SWA22555R

Descriptors: Landing, aircraft, wind, gusts, flight control hazards, aviation safety.

1975 SEAMAN, R.S. |/X|
Distance-time autocorrelation functions for winds in the Australian region.
Aust. Meteorol. Mag. 23(2) 27-40 8 refs 1975

Descriptors: winds, velocity, correlation functions, distance-time.

1975 SEAMAN, R.S., & DRAUDINS, I.M. |/X|
Statistics on the simultaneous variation of wind in time and space - Australian region, 20000 and 40000ft.
Australian Numerical Meteorology Research Centre, Technical Report No. 1
SR83437U

Correlation coefficients of zonal meridional wind components, for 51 station pairs at seven time lags from -24 to 24 hours, have been computed at 20000 and 40000ft, in summer and winter, based on Australian region upper wind sounding for the period 1962 to 1972. By-products of the computations are means and standard deviations for 34 individual stations.

1975 SERVICE DE LA METEOROLOGIE |/T|
Depressions et cyclones tropicaux, Pacifique sud-ouest 1974-1975.
New Caledonia. Service de la Meteorologie.
Noumea, Oct. 1975. Writen in French.
MGA28030110

Of the 21 tropical disturbances detected in the area during Oct. 1-Sept. 30, 1975, trajectories of eight tropical depressions and four cyclones are charted.

1975a SHERMAN, D.J. |/H|
The cumulative exceedance distribution for accelerations due to Turbulence encountered by a Mirage.
A.R.L. Tech. Memo. SM.228

The gust accelerations of a Mirage aircraft are estimated using the discrete gusts and two variants of the power spectral methods.

1975b SHERMAN, D.J.
Numbers of Wind Gusts on a Structure at Ground Level.
A.R.L. Tech.Memo. Struc.238

A method is given for calculating the number of wind load cycles incident on a structure which is either stationary with respect to the ground, or else moving at a fixed speed with respect to the ground.

1975 WALKER, D.R. |/M|
Perth Sea Breeze Project 1966: data.
Australian Bureau of Meteorology, Sept. 1975.
MGA28060373

The data consist of hourly double theodolite pilot ballon winds interpolated at 150m height intervals up to 1.5km.

1975 WILLSON, M.A. |/X|
Atmospheric tidal motions over Australia below 20 Kilometers
Monthly Weather Review, Boston, 103(12): 1110-1120.
MGA27040314

The diurnal and semidiurnal variations of the wind were computed from 12 years of upper wind observations.

1976 AUSTRALIA - DEPARTMENT OF TRANSPORT |/A|
Accident investigation report: Fokker Friendship F-27-100 aircraft VH-EWL at Bathurst, New South Wales, on 31 May 1974.
Transport Dept. Australia, Air Safety Investigation Branch, Special investigation Report 76-2.
SR80176U

An active cumulus cell generated a downdraft-outflow system with diameter possibly 700-800 m and a brief but severe lifetime of the order of five minutes. The outflow was of the order of 30-40 knots. Cloud tops estimated at 11000ft and possibly to 20000ft.

1976 BAINES, P.G. |/V|
Upstream influence and lee waves in stratified flow.
Bulletin of the American Meteorological Society. Vol 57, No. 1, Jan 76.

The flow of a stratified fluid over a two-dimensional obstacle produces, in addition to the well-known lee waves downstream, a horizontal columnar flow upstream which, for an effectively inviscid non-diffusive fluid propagates an infinite distance ahead of the obstacle. Some of the results of a combined experimental and theoretical study of this phenomenon are presented.

1976 CHRISTIE, D.R., MUIRHEAD, K.J., & HALES, A.L. |/M/V|
Solitary waves in the atmosphere.
Australian National Univ. Canberra, Research School of Earth Sciences, Rept No: 76-1
NTIS: AD-A031 228

This report presents a description and interpretation of an unusual type of isolated atmospheric gravity wave observed near Tennant Creek in central Australia. These solitary waves mark the onset of significant atmospheric turbulence.

1976a GOMES, L. & VICKERY, B.J. |/T|
On the prediction of tropical cyclone gust speeds along the Northern Australian Coast.
Sydney University, Australia, Civil Engineering Labs. Report R-278
NTIS: PB-252 919

Extreme wind speeds are predicted for tropical cyclones along the northern Australian coast.

1976b GOMES, L. & VICKERY, B.J. |/R|
On thunderstorm wind gusts in Australia, with particular reference to Observatory Hill, Sydney.
Sydney Uni., Australia. Civil Engineering Labs. Report R-277.
NTIS: PB-252 918, Civ. Eng. Trans. Inst. Eng. Aust., Vol CE18 No 2, 33-39

Statistical information on extreme wind gusts of thunderstorms in Australia.

1976c GOMES, L. & VICKERY, B.J. |/T|
Tropical cyclone gust speeds along the northern Australian coast- Discussion.
Civ.Eng.Trans.Inst.Eng.Aust. CE 18(2) 48-9 1976

Descriptors: Northern Australia, tropical cyclones, wind gusts.

1976d GOMES, L. & VICKERY, B.J. |/W/X|
An investigation of mean wind speeds in Australia from ground to gradient height.
Sydney University, School of Civil Engineering, Research Report 291.
SR81868U

Mean wind speeds from ground to gradient altitude of the relatively steady winds resulting from extensive mature pressure systems have been studied through the employment of ground anemometer and meteorological balloon data recorded at many stations throughout Australia.

1976 GRAY, T.I., IRWIN, J.R , KRUEGER, A.F., & VARNADORE, M.S. |/K/P/X|
Average circulation in the troposphere over the tropics, January 1968- August 1972.
National Environmental Satellite Service, NOAA, Suitland, MD 20235.
NOAA-76062909

This report presents charts of time-averaged circulation of the middle and upper troposphere over the tropics. These analyses are based on daily operational products which use expanded and improved data. The analyses show existence of circulation features which were poorly described by previous literature. Interhemispheric flow and variations in the vertical wind structure are examined. The zonal and meridional wind components, speeds, and standard deviations of these variables as well as steadiness factor and stream function, are analysed. Time averages, from a 54-month record are computed for monthly, seasonal and the annual mean periods. These data are processed for the 700-, 500-, 300-, 250-, and 200-mb levels.

1976 HICKS, B.B. |/W|
Wind profile relationships from the Wangara experiment.
Royal Meteorological Society, Bracknell, Eng.,Quarterly Journal, 102(433): 535-551.
MGA28020371

From over 1000 half-hour observations of near-surface wind profiles at Hay, New South Wales, more than 500 high quality sets of data are selected.

1976 HOWARD, P.J. |/H|
Fatigue Damage Due to Gust Loading of Mirage III O Aircraft
A.R.L. Note Structures 428 (R)

The fatigue damage experienced by a Mirage III aircraft due to wind gusts and turbulence is examined.

1976 MELARAGNO, M.G. |/S|
Structural design and Australian tornados.
Archit. Sci. Rev. 19(4) 78-83 refs 1976.

Descriptors: Tornados, effect on structures; Buildings, design, wind damage.

1976 MENON, K. N. |/Q|
Mystery of the monsoon.
Oceans, Menlo Park, CA., 9(4): 34-39.
MGA28020367

The first real monsoon experiment (MONEX) was launched in May 1973. It was discovered that the westerly winds along the Equator formed over the Arabian land mass; they blew at a height of 15,000ft; there were definitely two low-pressure areas on either side of the equator.

1976 NICHOLLS, N. & BUTTERWORTH, I.J.
Non-normality of wind distributions.
Aust. Meteorol. Mag. 24(1) 17-19 7 refs 1976.

Descriptors: winds, velocity, distributions, analysis, statistics, meteorology.

1976 SEAMAN, R.S.
Statistically based 250 MB wind forecasts.
Aust. Meteorol. Mag. 24(4) 149-163 13 refs 1976.

Descriptors: Numerical weather forecasting: wind, forecasts, statistics.

1976 SHERMAN, D.J. |/H|
The effect of Spanwise Gust Variations on the Transfer Function of an Aircraft Model with one degree of freedom.
A.R.L. Structures Note 431

Charts are derived to determine the power spectrum parameters for vertical acceleration, at an aircraft's centre of gravity due to atmospheric turbulence.

1976 SPARROW, J.G. |/D|
Mirage Negative Acceleration Excursions Monitored by Vgh Recorders.
A.R.L. Structures Note 423 (R)

This note shows that Vgh records may be taken as representative of flight data.

1976 SPILLANE, K.T., & DEXTER, P.E. |/T|
Design waves and wind in the Australian tropics.
Aust. Meteorol. Mag. 24(2) 37-58 36 refs 1976.

Descriptors: Wind-wave interactions, Australian tropics, water, waves, cyclones.

1976 STULL, R.B. |/L|
Mixed-layer depth model based on turbulent energetics.
Journal of the Atmospheric Sciences, Boston, 33(7): 1268-78.
MGA28020247

Model calculations of inversion rise and mixed layer depth offer good agreement with the observations.

1977 BUREAU OF METEOROLOGY
Manual of Meteorology, Part 2, Aviation meteorology.
Australian Government Publication, 1977.
MGA29030018

This volume is the basic text for courses undertaken by pilots, and air traffic controllers.

1977 DEL BEATO, R. |/R|
Thunderstorms and hydrostatic stability at Melbourne.
Australian Bureau of Meteorology, Technical Report 21.
ISBN-0642911665

Descriptors: atmospheric turbulence, hydrostatic stability of atmosphere, thunderstorms.

1977 De BILT |/K|
Marine climatological summaries for the Mediterranean and Southern Indian Ocean, Vol. 1, 1961.
Koninklijk Nederlands Meteorologisch Instituut, De Bilt.
MGA29030478

This publication contains the marine climatological summaries for the year 1961 for certain areas representative of the South Indian Ocean and Australian waters.

1977 De JONGE, J.B. & SPIEKHOUT, D.J.
Assessment of service load experince using Aids-recorded data.
National Aerospace Laboratory NLR, The Netherlands. NLR MP 77011 U.
SR 84579

Current transport aircraft are often equipped with so-called AIDS- (Aircraft Integrated Data System) recorder-systems. A few years ago, the airlines within the KSSU group operating Boeing 747 aircraft, viz. KLM, SAS and Swissair, decided to develop a system to extract on a routine basis fatigue load related data from their 747 AIDS recordings. It will be shown that AIDS recorded load data can be obtained at very low cost in such large quantities as to allow the analysis of specific influences such as season and location on turbulence intensity.

1977 FREEMAN, W. B. Jr |/R|
The distribution of Thunderstorm days, lightning discharges, and the incidence of lightning discharge derived from VLF Sferics data.
Air force Geophysics Lab Hanscom AFB Mass., Rept. No. AFGL-TR-77-0112, AFGL-SR-203.
NTIS: AD-A048 271

Centers of relatively high occurrence of lightning discharge on a yearly basis were located over South Africa, the Mediterranean Sea, Arabia, Southeast China, Southeast Asia, and Australia.

1977 GARRATT, J.R. |/W/X|
Aerodynamic Roughness and Mean Monthly Surface Stress over Australia.
CSIRO Division of Atmospheric Physics Technical paper No. 29

Aerodynamic roughness and mean monthly surface stress over Australia.

1977 HINDLEY, K. |/S|
Learning to live with twisters.
New Scientist, London, 75(1063): 280-282, Aug. 4, 1977.
MGA29020227

The author describes the known processes that form tornadoes and in more detail the general meteorological conditions under which thunderstorms form.

1977 JOST, G.S. |/F|
A review of Australian investigations on aircraft fatigue.
Minutes of the Fifteenth Conference of the International Committee on Aeronautical Fatigue, Darmstadt, May 1977.
ICAF Doc. No. 959, SR 83115.

The Australian Department of Transport's contribution indicated that their flight loads data acquisition program has been scaled down considerably, and is now only operating on an 'ad hoc' basis. Recorded data for General Aviation aircraft spans nearly 15 years and covers over 137000 hours flying for 64 different aircraft of 35 basic types. Load spectra for unpressurised and pressurised low wing twin engine aircraft are shown.

1977 LINACRE, E. & HOBBS, J. |/K|
The Australian Climatic Environment.
Wiley, (X+354pp), ISBN-0-471-02203-9

1977 MAHER, J.V., & LEE, D.M. |/X|
Upper Air Statistics Australia. Surface to 5 mb. 1957 to 1975
Meteorological Summary
Dept. of Science, Bureau of Meteorology.

1977 PHYSICK, W.L. |/M|
Observations of the sea breeze in the vicinity of a gulf.
Flinders Uni. S. Australia
Weather, Bracknell, Eng., 32(10): 373-381. Oct. 1977.
MGA29030413

The authors investigated the circulations induced by differential surface heating in the vicinity of a landlocked body of water such as St. Vincent Gulf, on whose shoreline Adelaide, South Australia, is situated.

1977 SMITH, R.K., MANSBRIDGE, J.V., & LESLIE, L.M. |/S|
Effect of a precipitation-driven downdraft on a rotating wind field - possible trigger mechanism for tornadoes.
Journal of the Atmospheric Sciences, V34, N3, p548-549.

1977 SPARROW, J.G. |/H|
The Interpretation of Turbulence Induced Loads for Fatigue Analysis.
A.R.L. Structures Note 434

Flight data from a Mirage aircraft flying through turbulence is used to compare the methods used to derive range exceedances based on fatigue meter data and the H1 hypothesis, and that derived directly from a range pair table.

1977a U.S. NAVAL WEATHER SERVICE |/K|
Summary of Synoptic Meteorological Observations (SSMO) Australian Coastal Marine Areas - Volume 1.
U.S. Naval Weather Service.
AD A044 518

This report presents marine climatological data for the Australian East Coast in 21 different tables including weather occurrence, wind direction and speed, cloud amount, ceiling height, visibility, precipitation, dry bulb, relative humidity, air-sea temperature difference, sea height and period, sea surface temperature and sea level pressure. The following areas are covered: Area 1 - Princess Charlotte Bay, Area 2 - Cairns, Area 3 - Cumberland Islands, Area 4 - Rockhampton, Area 5 - Brisbane, Area 6 - Coffs Harbour, Area 7 - Sydney, Area 8 - Cape Howe NE.

1977b U.S. NAVAL WEATHER SERVICE |/K|
Summary of Synoptic Meteorological Observations (SSMO) Australian Coastal Marine Areas - Volume 2.
U.S. Naval Weather Service, September 1977.
AD A044 426

This report presents marine climatological data for the Australian South Coast in 21 different tables including weather occurrence, wind direction and speed, cloud amount, ceiling height, visibility, precipitation, dry bulb, relative humidity, air-sea temperature difference, sea height and period, sea surface temperature and sea level pressure. The following areas are covered: Area 9 - Melbourne SE, Area 10 - Tasmania East, Area 11 - Tasmania West, Area 12 - Cape Nelson, Area 13 - Spencer Gulf, Area 14 - Australian Bight SE, Area 15 - Australian Bight SW.

1977c U.S. NAVAL WEATHER SERVICE |/K|
Summary of Synoptic Meteorological Observations (SSMO) Australian Coastal Marine Areas - Volume 3.
U.S. Naval Weather Service, September 1977.

AD A044 425

This report presents marine climatological data for the Australian West Coast in 21 different tables including weather occurrence, wind direction and speed, cloud amount, ceiling height, visibility, precipitation, dry bulb, relative humidity, air-sea temperature difference, sea height and period, sea surface temperature and sea level pressure. The following areas are covered: Area 16 - Esperance Bay South, Area 17 - Cape Leeuwin, Area 18 - Perth NW, Area 19 - Shark Bay, Area 20 - Barrow Island, Area 21 - Broome, Area 22 - Cape Talbot.

1977 WEBB, E.K. |/L|
Convection Mechanisms of Atmospheric Heat Transfer from Surface to Global Scales.
CSIRO, Aspendale (Australia). Div. of Atmospheric Physics.
NTIS:N77-30685

The dry convection processes which participate in the transfer of sensible and latent heat in the atmosphere were studied.

1977 WOOLCOCK, A.F. |/R|
Unusual hailstones.
Australian Meteorological Magazine, Canberra, 24(2):87-89.
MGA29010402

On Oct. 31, 1973, at 1655 hr Eastern Summer Time during a heavy thunderstorm, oddly shaped hailstones fell at East Sale, Victoria. The radiosonde ascent at Laverton showed the air to be unstable throughout the troposphere.

1978 AGE NEWSPAPER, MELBOURNE |/A/R/S|
"Inquiry ordered on $1m plane damage".
The Age Newspaper, Monday 27, March 1978. Melbourne.

On Saturday afternoon, 25th March, without warning, a 150kmh. wind gust swept across the Oakey air base, 160 kilometres west of Brisbane, scattering the Pilatus Porter and Nomad aircraft which had been lashed down to the tarmac. The storm was exceptionally fierce and came through a narrow front, missing the Oakey township only five kilometres away.
The 15 damaged aircraft had been lashed down to gust locks embedded into cement blocks on the tarmac after the base's meteorological office warned of changing weather conditions. The wind accompanied by heavy rain was the strongest recorded at Oakey. Undercarriages were ripped out and gust blocks pulled out of their bases. At the same time a lightning strike shattered a large tree nearby.

1978 ANDERSON, K.W., & CLARK, B.A.J. |/Y|
A Questionnaire survey of opinions of Pilots and Air Traffic Controllers on Wind Shear in Australia.
Systems Information Paper, A.R.L.

A Questionnaire survey of pilot opinions on wind shear.

1978 BARCLAY, P.A. |/R|
Aircraft turbulence encounters in the vicinity of thunderstorms.
AIRMET Conference, Canberra Met. Soc., RMS (Aust. Branch) 9/10 Feb. 1978.

Three basic aircraft types, B727, DC9 and F27 fly the domestic passenger routes into and out of Brisbane. These aircraft are fitted with flight data recorders which record, by engraving on to 6" wide Inconel tape, altitude, indicated airspeed and aircraft heading once per second, and vertical acceleration ten times per second. Approximately 1010 n mile of flight within 60 n mile of Brisbane terminal area has been analysed and some of the results from this analysis are reported in this paper. Radar echo reflectivity information was obtained from a WF44 radar.
Results from the investigation show that moderate turbulence can occur at ranges of 20 n mile downwind of echoes. Any diversions therefore should definitely be behind echoes.

1978 BIGG, E.K. & TURVEY, D.E.
Sources of atmospheric particles over Australia.
Division of Cloud Physics, CSIRO, Australia. Atmospheric Environment Vol. 12, pp. 1643-1655.

Total particle concentration have been measured from ground level to about 6000m over more than 100,000 km of flight path in the Australian region over three years.

1978 CHRISTIE, D.R., MUIRHEAD, K.J., & HALES, A.L. |/V|
Research on linear and nonlinear atmospheric waves.
Research School of Earth Sciences, The Australian National University.
AD A062 567

The results of a three year study of linear and nonlinear waves in the atmosphere based on an experimental program at the Warramunga Seismic Station located near Tennant Creek. First, a description is given of the discovery of three fundamentally different types of atmospheric solitary wave. Secondly, the results and implications of a study of the evolutionary properties of a new form of soliton generating propagating disturbance in the lower troposphere are presented. The third investigation is concerned with a study of the characteristics of acoustic microbarom radiation in the Southern Hemisphere with regard to a determination of the equatorial structure of the stratosphere and lower thermosphere. Finally, an outline is given of the research into the origin of nonlinear long period irregular atmospheric gravity waves.

1978 COULMAN, C.E. |/L|
Boundary-Layer evolution and nocturnal inversion dispersal-part 1.
Boundary-Layer Meteorology,
Vol. 14, No.4 Page Nos. 471-491 June 1978

The evolution of boundary layers capped by nocturna inversions has been studied with an instrumented aircraft. large sample of the original data obtained on two of the fou observation days is presented. Profiles of temperature, humidity and sensible and latent heat flux are compared with the results of numerical models.

1978 DEPARTMENT OF TRANSPORT, AUSTRALIA |/S/L|
Dust devils and aviation (paper based on questions raised at aviation symposium at Longreach, Qld).
Aviation Safety Digest, No. 101, 1978: 20-21.

Dust devil formation requires strong surface heating for some hours with little surface wind. This implies a decidedly super adiabatic lapse rate near the ground with surface temperatures in the region of 60 to 70 degrees centigrade, and cloudless skies or at least well-scattered high level cumulus cloud. Dust devils also occur along the sea breeze front in hot arid or semi arid regions. Invisible dust devils can occur after a good season when there is more grass. Dust devils, whether visible or not, are a hazard to light aircraft taking-off or landing, specially since disturbances have their greatest energy near the ground. The risk of loss of control seems to be greater in the upper part of the disturbance where the ri.ing air column changes its structure by spreading and contains areas of subsiding air.

1978 GRAY, T.I. & VARNADORE, M.S. |/K|
Analyses and Data listings of Winds over the Tropics.
Bulletin American Meteorological Society, Vol. 59, No:7, July 1978.

A series of multilevel monthly mean wind analyses and associated data listings are available as computer output microform (COM) products. More than 4 years of these data were processed to provide the average circulation in the Troposphere over the Tropics. The primary set of monthly wind analyses consists of three fields mapped on three Mercator projections. These fields are 1) the zonal component, 2) the meridional component, and 3) the stream function of the resultant wind. The data in meters per second are available for the 700, 500, 300, and 200 mb levels for the complete period. Analyses for the lower levels of 850 and 1000 mb have been added to the series subsequently.

1978 HIRST, A. & LINACRE, E.T. |/K|
Associations between coastal sea surface temperatures, onshore winds, and rainfalls in the Sydney area.
Search. Australian and New Zealand Association for the Advancement of Science. Sydney, Australia 9(8-9): 325-7

Descriptors: Sydney, rainfall, onshore winds, sea-surface temperature, rainfall effects.

1978 MEIGHEN, P.J., SHERMAN, D.J., & THOMSON, M.R. |/R|
Thunderstorm Gusts from a Radar Viewpoint.
Proc. AIRMET Conf. Canberra 1978, pp127-129.

An explanation of the TAST service provided by the Bureau of Meteorology, and two case histories of gust fronts passing over an anemometer array as the airport weather radar tracked the thunderstorms.

1978 MELBOURNE, W.H.
Wind environment studies in Australia.
Journal of Industrial Aerodynamics, V3, N2-3, p201-214.

1978 SMITH, R.K., & LESLIE, L.M. |/S|
Tornadogenesis.
Royal Meteorological Society, Bracknell, Eng., Quarterly Journal 104(439): 189-199, Jan. 1978.
MGA29060243

The authors use a simple numerical model to study vortex growth in a flow configuration that simulates the principal characteristics of a severe tornadic storm system.

1978 SMITH, R.K. |/S|
Tornado Dynamics.
Proceedings, The Third U.S. National Conference, Wind Engineering Research, Feb.26-Mar.1, 1978.
PB 296335

The paper reviews a study of tornado dynamics and tornadogenesis using a simple numerical model. The model includes a representation of the two basic ingredients thought to be essential to tornadogenesis, namely the vigorous cloud updraft as the primary driving mechanism and a mesoscale (i.e. cloud scale) source of enhanced ambient rotation.

1978 U.S. NAVAL WEATHER SERVICE |/K|
Summary of meteorological observations, surface (SMOS), McMurdo Station, Antartica.
US Naval Weather Service, AD-A063-829/6SL.

This data report consists of a six part statistical summary of surface weather observations. The six parts are: Part A - weather conditions/atmospheric phenomena, Part B - precipitation/snowfall/snowdepth, Part C - surface winds, Part D - ceiling versus visibility/skycover, Part E - psychrometric summaries, and Part F - station pressure/sea level pressure.

1979a AGE NEWSPAPER, MELBOURNE |/R/S|
"South Australia lashed by wild storms."
The Age Newspaper, Thurs. 15, November 1979. Melbourne.

Many houses had their roofs ripped off, and three wineries were severely damaged in wild storms that lashed South Australia on the 14th November, 1979.
See also Age Newspaper, Fri. Nov 16, 1979, p5, "Aircraft overturned as storm hits Sydney".

1979b AGE NEWSPAPER, MELBOURNE |/A/R/S|
Aircraft overturned as storm hits Sydney".
The Age Newspaper, Fri. Nov. 16, 1979, p5. Melbourne.

A wild storm overturned more than a dozen aircraft at Bankstown airport late on the night of 15th Nov. 1979. The storm, the tail end of the gusts which savaged parts of South Australia on the 14th Nov., caused damage put at hundreds of thousands of dollars.
At the height of the 100kmh storm a gust tore away a large hanger door. Like the South Australian buster, the night's storm lasted only about three minutes.
See also Age Newspaper, Thurs. Nov. 15, 1979. "South Australia lashed by wild storms".

1979 CADET, D. |/Q|
Meteorology of the Indian summer monsoon.
Nature, Vol. 279, 28 June, 1979. Pages 761-767.

The seasonally varying monsoon circulations associated with the annual heating and cooling of the Asian continent are the most important large scale aspects of the general circulation of the atmosphere. The Indian summer monsoon takes place over the entire Indian Ocean.

1979 INTERNATIONAL CONFERENCE ON TROPICAL CYCLONES |/T|
International Conference on Tropical Cyclones 25-29 November 1979, *Perth, Australia.*
Handbook of abstracts/cosponsors Royal Meteorological Society.

1979 JOST, G.S. (Ed.) |/F|
A review of Australian investigations on Aeronautical fatigue during the period April 1977 to March 1979.
A.R.L. Structures tech. memo. 303 (Fiche No. AR-001-356).
Prepared for Minutes of the 16th Conference of the International Committe on Aeronautical Fatigue.

Reports that the atmospheric gust environment in most of inland Australia is more severe than that shown by commonly used published data. Justification of the conclusion based on Aerocommander fatigue meter data is shown in ARL file M2/518 f.28a. The Australian Department of Transport contribution indicates a low level of activity in flight loads measurements. Some interesting fatigue meter data from two gliders is presented and compared with fatigue meter data from two glider tug aircraft.

1979 MINOR, J.E., & PETERSON, R.E. |/S/I|
Characteristics of Australian Tornadoes.
11-th Conference on Severe local storms.
American Met. Soc. Kansas City, Missouri, 2-5 Oct. 1979.

Several recent tornado events are providing evidence that Australian tornadoes are very similar to their American cousins. In this paper there are summaries of the characteristics of tornadoes which occur on the Australian continent. In addition, several historical events are reviewed, including some recent occurrences of significance.

1979 SPARROW, J.G. & THOMSON, M.R. |/D|
Velocity-Height Regimes for Mirage Flying.
A.R.L. Structures Note 438, Jan. 1979 (R).

181.5 hours of Vgh records from Mirage flights are used to assess the contribution made by turbulence to the overall Mirage Spectra. The presence of manoeuvres makes it very difficult to separate gust loading from other loading. At best only the acceleration increments of the +/- 0.25g level have a significant contribution from turbulence, and the proportions of loading due to gusts and manoeuvres are uncertain. A pilot project, not reported in this note, indicated that a detailed study of the time histories might be able to distinguish turbulence from manoeuvres and if this proved feasible about 600 hours of Vgh records of flying in the Williamstown, NSW area might become usable. The data might be suspect on account of unknown gust alleviation (or perhaps magnification) introduced by the auto-pilot.

1979 SUN NEWSPAPER, MELBOURNE |/A|
"Police helicopter in plunge".
The Sun Newspaper, Tues. 4 Dec., 1979. Melbourne.

The police air wing's new $1.5 million Dauphin helicopter was damaged when it dropped 100 feet and bounced off the ground. A big air pocket is said to have caused the incident.
See also The Herald, Tues. 4 Dec. 79, "Copter drop puzzle", and The Sun, Wed. 5 Dec. 79, "Copter hit air pocket".

1979 THOMSON, M.R. |/U/W|
The wind speed spectrum in an industrial environment or Does the spectral gap exist?
A.R.L. Structures Note No.457 Oct, 1979.

A wind speed energy spectrum measured near ground level in a low-rise industrial building environment is presented.

1980 ALLEN, S.C. |/S/I|
A preliminary Australian tornado climatology.
Bureau of Meteorology, Melbourne, Dec. 1980.

1980 BATES, F.C. |/S|
Inside the tempest.
RAAF- Flying Safety Spotlight, Issue 2/80
Reprinted from Aviation Safety Digest No. 54, Jan 1968.

The article describes some of the findings of recent (1968) research into the formation of tornadoes. The article contains a theory which explains how 'dry' tornadoes may be formed.

1980 RIDER, C.K., SHERMAN, D.J., & THOMSON, M.R. |/R/W|
Low level wind study- Bald Hills: Thunderstorm Season 1976-77.
A.R.L. Structures Report 384, Oct. 1980.

A study of several incidents when high wind shear or sudden gusts were encountered at an anemometer network using the 200m radio transmitter tower at Bald Hills, Brisbane.

1980 RUMING, R.H. |/R|
Radar detection of Hail.
RAAF-DAFS Flying Safety Spotlight. Issue No. 2/80.

Some incidents giving rise to hail damage to various Orion aircraft are described. The following points are made:
1. Airborne weather radar (3cm) is susceptible to absorption and scattering. Attenuation is specially marked when there is heavy precipitation in the antenna's near field. This may mask severe weather a little further off.
2. Hail, when dry, has a very small radar echo when compared with the same amount of precipitation as water.

1980 SMITH, R.K. |/S|
Untwisting the mysteries of tornadoes.
New Scientist, 20 February 1980.

Doppler radar data have made a major contribution to the understanding of the motions of air in severe thunderstorms and, in particular, to the growth of vortices within them. The discovery of a "signature" in single doppler radar data which marked the position of the tornado throughout its lifetime and which visual observations confirmed, was particularly exciting. Thunderstorms which spawn the most intense tornadoes are themselves rotating. The origin of the rotation is a story by itself; however, knowing that the rotation exists, Smith shows how it may be concentrated. A buoyant updraught high in the cloud could generate a downward-growing vortex in a rotating environment. The fact that vortex formation requires the rotation and updraught strengths to lie within quite narrow limits would explain why tornadoes are relatively uncommon.

1980 STEINER, J.T. |/K|
The Climate of the South West Pacific region: a review for pilots.
Wellington, New Zealand Meteorological Service.

1981 BROOK, R.R. |/P|
A study of the subtropical jet stream in the Australian region.
To be submitted to the Australian Meteorological Magazine.

This paper includes data on the monthly location and speed of the subtropical jet stream in the Australian region. In previous work (Weinert, 1968) on the subject, the jet stream location was chosen as the point of maximum velocity, and sometimes in summer, when the sub tropical jet is weak, the polar jet was erroneously indicated. Brook has overcome this problem.

1981 COLQUHOUN, J.R. |/G/V/W|
An occurrence of extreme turbulence over Eastern NSW.
Report prepared for ARL by Bureau of Meteorology, Sydney, held on ARL file M2/214/1 (56), April 1981.

Meteorological conditions associated with a case of extreme low level turbulence on 11th September 1969 (see Rider et al.,1971) are described and possible causes of the turbulence discussed. The turbulence was due to the interaction of strong surface winds with the rough topography. Winds may have been enhanced by the presence of a large amplitude mountain wave. Damage on this day was minor, and, if it is assumed that the severity of low level turbulence is related to near surface wind speeds, the history of much more destructive downslope winds in NSW suggests that the turbulence encountered on 11.9.69 was less than an extreme event.

1981 SHERMAN, D.J. |/I|
Aircraft measurements of the frequency of turbulence encounters in Australia.
A.R.L. Structures Note 471.

This paper reviews the available data from investigations which give a decomposition by altitude of turbulence encountered in routine flying operations in Australia. The data sets are reanalysed to bring them all to a comparable basis and compared with the design curves from ESDU data item 69023. It is concluded that, whilst there is insufficient data to define the turbulence probabilities very accurately, the data are generally not incompatible with the ESDU design curves except at altitudes above 30,000ft where there is some indication that turbulence, and particularly the more severe turbulence, occurs rather more often than the ESDU data item predicts.

Section 2 - Alphabetical list of Authors

1972 ABBEY, R.F.,Jr. |/X|
1974 ADVERTISER NEWSPAPER, ADELAIDE. |/A|
1969 AGE NEWSPAPER, MELBOURNE |/R|
1975 AGE NEWSPAPER, MELBOURNE |/R/S|
1978 AGE NEWSPAPER, MELBOURNE |/A/R/S|
1979a AGE NEWSPAPER, MELBOURNE |/R/S|
1979b AGE NEWSPAPER, MELBOURNE |/A/R/S|
1980 ALLEN, S.C. |/S/I|
1978 ANDERSON, K.W., & CLARK, B.A.J. |/Y|
1963 APLIN, J.E. |/E|
1960 ASHTON, H.T. |/R|
1976 AUSTRALIA - DEPARTMENT OF TRANSPORT |/A|
1943 AUSTRALIAN METEOROLOGICAL SERVICE |/K|
1969 AUSTRALIAN NEWSPAPER |/A/R|
1978 AVIATION SAFETY DIGEST |/S/L|
1954 BACON, N.E., & HOOKE, F.H. |/C|
1955 BACON, N.E. |/C|
1956 BACON, N.E. |/E/F|
1976 BAINES, P.G. |/V|
1974 BARCLAY, P.A. |/R/G|
1978 BARCLAY, P.A. |/R|
1962 BARNARD, J.M.H., & GEE, S. |/G|
1965 BARNARD, J.M.H., & BRUCE, G.P., & GEE, S.
1980 BATES, F.C. |/S|
1953 BAUM, Q., & HOOKE, F.H. |/E|
1969 BERSON, F.A. |/R|
1970 BERSON, F.A. & LAMOND, M.H. |/M/R|
1971 BERSON, F.A. |/R|
1978 BIGG, E.K. & TURVEY, D.E.
1969 BILHAM, B.W. |/F|
1972 BIRCH, R.L. |/R|
1972 BLACKMAN, D.R. |/W|
1968 BROOK, R.R., & SPILLANE, K.T. |/W/Y|
1970 BROOK, R.R. |/W/Y|
1971 BROOK, R.R. & COLEMAN, F.
1973 BROOK, R.R. |/W|
1974 BROOK, R.R. |/W|
1981 BROOK, R.R. |/P|
1970 BROOKFIELD, M. |/W|
1961a BRUCE, G.P., & HOOKE, F.H. |/F|
1961b BRUCE, G.P., & HOOKE, F.H. |/F/O|
1968 BRUCE, G.P. |/F/N/O|
1966 BULLEN, N.I. |/E|
1942 BUREAU OF METEOROLOGY |/K|
1950 BUREAU OF METEOROLOGY |/K|
1956 BUREAU OF METEOROLOGY |/T|
1958 BUREAU OF METEOROLOGY |/X|
1962 BUREAU OF METEOROLOGY |/A|
1965 BUREAU OF METEOROLOGY |/T|

1968a BUREAU OF METEOROLOGY |/T|
1968b BUREAU OF METEOROLOGY |/T|
1971a BUREAU OF METEOROLOGY |/K|
1971b BUREAU OF METEOROLOGY |/K|
1972a BUREAU OF METEOROLOGY |/K|
1972b BUREAU OF METEOROLOGY |/K|
1975 BUREAU OF METEOROLOGY |/T|
1977 BUREAU OF METEOROLOGY
1968 BURNHAM, J.
1973 BURNS, A. |/J/R|
1965 BURNS, A., & RIDER, C.K. |/J/P/V|
1979 CADET, D. |/Q|
1976 CHRISTIE, D.R., MUIRHEAD, K.J., & HALES, A.L. |/M/V|
1978 CHRISTIE, D.R., MUIRHEAD, K.J., & HALES, A.L. |/V|
1962 CLARKE, R.H. |/R/S|
1966 CLARKE, R.H. |/J/P/X|
1972 CLARKE, R.H.
1972 COLEMAN, F. |/T|
1975a COLQUHOUN, J.R. |/R|
1975b COLQUHOUN, J.R. |/R|
1981 COLQUHOUN, J.R. |/G/V/W|
1968 COMMANDER FAR EAST FLEET |/K|
1978 COULMAN, C.E. |/L|
1960a CREASI, V.J. |/I|
1960b CREASI, V.J. |/I|
1965 CROOKS, W. |/G/J|
1967a CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al |/G/J|
1967b CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al |/G/J|
1967c CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al |/G/J|
1966 CUMMING, R.W., LENNOX, D., & MELBOURNE, W.H. |/Y|
1966 CURNOW, R. |/J|
1963 DALTON-MORGAN, T.F., & RIDER, C.K. |/G/J|
1955 DEACON, E.L. |/W|
1967 DEACON, E.L. & STEVENSON, J. |/W|
1977 DEL BEATO, R. |/R|
1978 DEPARTMENT OF TRANSPORT, AUSTRALIA |/L/S|
1949 DESMOND, E., & RADOK, U. |/V|
1949 DESMOND, E., & RADOK, U. |/M|
1977 De BILT |/K|
1977 De JONGE, J.B. & SPIEKHOUT, D.J.
1975 DeANGELIS, D. |/T|
1968 ENDLICH, R.M. & MANCUSO, R.L.
1972 FALLS, R. |/Q|
1951 FERSTAT, Q. |/C|
1966 FODEN, P.J. |/B|
1967 FODEN, P.J. |/B|
1967 FODEN, P.J.
1977 FREEMAN, W. B. Jr |/R|
1970 FUJITA, T. T. |/S|
1972 FUJITA, T. T. |/S|
1977 GARRATT, J.R. |/W/X|
1969 GENTILLI, J. |/M|
1961 GEORGE, J.J. |/J|
1952 GIBBS, W.J. |/P|

1961 GIBBS, W.J. & HOUNSELL, W.K. |/X|
1976a GOMES, L. & VICKERY, B.J. |/T|
1976b GOMES, L. & VICKERY, B.J. |/R|
1976c GOMES, L. & VICKERY, B.J. |/T|
1976d GOMES, L. & VICKERY, B.J. |/W/X|
1962 GOODMAN, G.S., BATH, A.T., & McRAE, J.N. |/R|
1976 GRAY, T.I., IRWIN, J.R., KRUEGER, A.F., & VARNADORE, M.S.
|/K/P/X|
1978 GRAY, T.I. & VARNADORE, M.S. |/K|
1975 GRIMSHAW, R.H.J. |/V|
1970 HACIA, H. |/I|
1973 HEALY, T.R. |/X|
1958 HEATH-SMITH, J.R. |/E|
1959 HEATH-SMITH, J.R. |/E|
1969 HERALD NEWSPAPER, MELBOURNE |/A|
1973 HESS, G.D., & CLARKE, R.H. |/W|
1976 HICKS, B.B. |/W|
1961 HIGGS, M.G.J. |/F/O|
1977 HINDLEY, K. |/S|
1978 HIRST, A. & LINACRE, E.T. |/K|
1948 HOGAN, J. |/K|
1947 HOOKE, F.H., & WILLS, H.A.
1947a HOOKE, F.H. |/C|
1947b HOOKE, F.H. |/I|
1948 HOOKE, F.H. |/C|
1949 HOOKE, F.H., & FERSTAT, Q. |/C|
1953a HOOKE, F.H. |/F|
1953b HOOKE, F.H. |/F|
1954 HOOKE, F.H. |/H|
1955a HOOKE, F.H.
1955b HOOKE, F.H. |/C/O|
1956 HOOKE, F.H., & BAUM, Q. |/C|
1961 HOOKE, F.H., PATTERSON, A.K., & PERRY, S.R. |/B|
1976 HOWARD, P.J. |/H|
1943 HUDDLESTON, H.F. |/M/K|
1967 HUNTER, P.A. |/D|
1967 HUNTER, P.A. & FETNER, M.W. |/D|
1979 INTERNATIONAL CONFERENCE ON TROPICAL CYCLONES |/T|
1958 JEN-HU-CHUNG |/K|
1977 JOST, G.S. |/F|
1979 JOST, G.S. (Ed.) |/F|
1964 KAMIKO, T. |/M|
1954 KARELSKY, S. |/K/T/M|
1956 KARELSKY, S. |/K/T|
1971 KAYNES, I.W. |/E|
1972a KAYNES, I.W. |/E|
1972b KAYNES, I.W. |/E|
1968 KEPERT, J.L., & RIDER, C.K. |/A|
1974 KRUZHKOVA, T.S. & NOVOZHILOVA, N.I. |/K|
1967 LABETT, E.T. |/F|
1972 LABY, J.E., & UNTHANK, E.L. |/X|
1974 LABY, J.E., & UNTHANK, E.L. |/X|
1977 LINACRE, E. & HOBBS, J. |/K|
1972 LLOYD, K.H., LOW, C.H., & VINCENT, R.A. |/J/V|

1973 LLOYD, K.H., LOW, C.H., & VINCENT, R.A. |/V|
1940 LOEWE, F. |/X|
1945 LOEWE, F. |/X|
1952 LOEWE, F., & RADOK, U. |/K/X|
1975 MACKERRAS, D. & PRENTICE, S.A. |/I/R|
1973 MACNICOL, B., & THOMSON, M.R. |/R|
1964 MAHER, J.V., & McRAE, J.N. |/X|
1966 MAHER, J.V., & McRAE, J.N. |/X|
1977 MAHER, J.V., & LEE, D.M. |/X|
1973 MANN, J.Y. |/F|
1975 MANN, J.Y. |/F|
1978 MEIGHEN, P.J., SHERMAN, D.J., & THOMSON, M.R. |/R|
1976 MELARAGNO, M.G. |/S|
1978 MELBOURNE, W.H.
1976 MENON, K. N. |/Q|
1934 METEOROLOGICAL OFFICE. GREAT BRITAIN. |/K|
1946 METEOROLOGICAL OFFICE. GREAT BRITAIN. |/K|
1979 MINOR, J.E., & PETERSON, R.E. |/S/I|
1963 MIZON, E.A. |/G/J/P/V|
1960 McDONELL, R. |/A/J|
1959 McRAE, J.N., WELLER, G.E., & LEE, D.M. |/L|
1970 McRAE, J.N. |/X|
1971 McRAE, J.N. |/X|
1973 NEAL, A.B. |/K|
1949 NEDERLANDS MEREOTOLOGISCH INSTITUUT |/T/W|
1972 NEWELL, R.E., *et al.* |/K/X|
1946 NEWMAN, B.W. & McCANN, A. |/K|
1976 NICHOLLS, N. & BUTTERWORTH, I.J.
1966 NILSSON, S.I.
1973 NOAR, P.F. |/K|
1975 PADYA, B.M. |/T|
1962 PATTERSON, A.K., HIGGS, M.G.J., & HOOKE, F.H. |/F/O|
1962 PATTERSON, A.K. |/B|
1968 PATTERSON, A.K. |/B|
1971 PECKHAM, C.G. |/D/E|
1952 PHILLPOT, H.R., & REID, D.G. |/X|
1953 PHILLPOT, H.R., & REID, D.G. |/X|
1959a PHILLPOT, H.R. |/X|
1959b PHILLPOT, H.R. |/H|
1961 PHILLPOT, H.R. |/X|
1967 PHILLPOT, H.R. |/K|
1977 PHYSICK, W.L. |/M|
1974 PITTOCK, A.B. |/K|
1970 PLUSS, D.H. |/J/V|
1968 POWELL, F.A. |/J|
1944 RAAF DIRECTORATE OF METEOROLOGICAL SERVICES |/K|
1942 RAAF METEOROLOGICAL BRANCH |/K|
1947 RADOK, J.R.M., & STILES, L.F. |/H|
1947a RADOK, J.R.M. |/H|
1947b RADOK, J.R.M. |/H|
1948 RADOK, J.R.M., & STILES, L.F. |/H|
1949a RADOK, J.R.M. |/H|
1949b RADOK, J.R.M. |/H|
1954 RADOK, J.R.M. |/H|

1946 RADOK, U. |/X|
1948 RADOK, U. |/G|
1949c RADOK, U. |/R|
1950 RADOK, U. |/V|
1953 RADOK, U. |/V|
1954 RADOK, U. |/V|
1954 RADOK, U. |/J/V|
1956 RADOK, U. |/V|
1961 RADOK, U. |/J|
1971 RADOK, U. |/P/K|
1957 RADOK, U., & GRANT, A.M. |/K/X|
1958 RADOK, U., & CLARKE, R.H. |/P|
1971 RAMANO, D. |/P|
1952 REID, D.G. |/V|
1963 REITER, E.R. |/J/P/V|
1965 REITER, E.R., & BURNS, A. |/J/U|
1966 REITER, E.R. |/J|
1966 REITER, E.R., & BURNS, A. |/J|
1967 REITER, E.R., & FOLTZ, H.P. |/J/V|
1967 RIDER, C.K. |/J/U|
1971 RIDER, C.K., & THOMSON, M.R. |/G/J|
1971 RIDER, C.K., THOMSON, M.R., & VERINDER, F.E. |/G/U|
1973 RIDER, C.K., SPARROW, J.G., THOMSON, M.R., & VERINDER,
F.E. |/H|
1974 RIDER, C.K., SPARROW, J.G., & THOMSON, M.R. |/H|
1980 RIDER, C.K., SHERMAN, D.J., & THOMSON, M.R. |/R/W|
1959 ROBEY, F.S. |/A|
1966 ROFE, B. |/X|
1965 ROMANOV, I.A. |/W|
1957a ROYAL AIRCRAFT ESTABLISHMENT |/I|
1957b ROYAL AIRCRAFT ESTABLISHMENT |/I|
1942 ROYAL AUSTRALIAN AIR FORCE |/K|
1975 ROYAL AUSTRALIAN AIR FORCE |/R|
1980 RUMING, R.H. |/R|
1956 RUTHERFORD, G.T. |/A/J|
1975 SEAMAN, R.S. |/X|
1975 SEAMAN, R.S., & DRAUDINS, I.M. |/X|
1976 SEAMAN, R.S.
1975 SERVICE DE LA METEOROLOGIE |/T|
1973a SHANAHAN, B.W. |/J|
1973b SHANAHAN, B.W. |/A/J|
1974 SHERMAN, D.J. |/V|
1975a SHERMAN, D.J. |/H|
1975b SHERMAN, D.J.
1976 SHERMAN, D.J. |/H|
1981 SHERMAN, D.J. |/I|
1972 SMITH, E.J. |/J/V|
1977 SMITH, R.K., MANSBRIDGE, J.V., & LESLIE, L.M. |/S|
1978 SMITH, R.K., & LESLIE, L.M. |/S|
1978 SMITH, R.K. |/S|
1980 SMITH, R.K. |'S|
1976 SPARROW, J.G. |/D|
1977 SPARROW, J.G. |/H|
1979 SPARROW, J.G. & THOMSON, M.R. |/D|

1962 SPICER, Justice |/A|
1964 SPILLANE, K.T. |/J/P/V|
1965 SPILLANE, K.T. |/J/P|
1967 SPILLANE, K.T. |/G/J/P|
1968 SPILLANE, K.T., & BROOK, R.R. |/W/Y|
1969 SPILLANE, K.T. |/J|
1971 SPILLANE, K.T., & RADOK, U. |/G/J|
1971 SPILLANE, K.T. |/F/J/N/O|
1976 SPILLANE, K.T., & DEXTER, P.E. |/T|
1980 STEINER, J.T. |/K|
1976 STULL, R.B. |/L|
1979 SUN NEWSPAPER, MELBOURNE |/A|
1968 SWINBANK, W.C. & DYER, A.J. |/W|
1962 TAYLOR, R.H. |/F/O|
1968 TAYLOR, R.J., WARNER, J., & BACON, N.B. |/G/L|
1970 TAYLOR, R.J., WARNER, J., & BACON, N.E. |/J/U|
1972 TAYLOR, R.J. |/U/G|
1974 THOMSON, M.R., & SPARROW, J.G. |/H|
1979 THOMSON, M.R. |/U/W|
1967 TRAILL-NASH, R.W., CHANDIVERT, M.S. |/H|
1967 TRAYFORD, R.S. |/B|
1952 TREFRY, G.R. |/J/V|
1938 TRELOAR, H.M., & NEWMAN, B.W. |/K|
1938 TRELOAR, H.M., NEWMAN, B.W. & NEWELL, H.F. |/K|
1944 TRELOAR, H.M. |/X/K|
1956 TROUP, A.J. |/M/X|
1967a U.S. NAVAL WEATHER SERVICE |/K|
1967b U.S. NAVAL WEATHER SERVICE |/K|
1977a U.S. NAVAL WEATHER SERVICE |/K|
1977a U.S. NAVAL WEATHER SERVICE |/K|
1977b U.S. NAVAL WEATHER SERVICE |/K|
1977b U.S. NAVAL WEATHER SERVICE |/K|
1977c U.S. NAVAL WEATHER SERVICE |/K|
1978 U.S. NAVAL WEATHER SERVICE |/K|
1969 U.S.A.F. WEATHER WING |/K|
1970 VEAZEY, D.R. |/I/J|
1974 VICTORIAN YEAR BOOK |/K/R/S|
1965 VISICK, J. |/E/N/O|
1966 VISICK, J. |/B|
1975 WALKER, D.R. |/M|
1970 WALLINGTON, C.E. |/V|
1972a WARNER, J. |/M|
1972b WARNER, J. |/N|
1948 WARREN, H.N. |/N/W|
1977 WEBB, E.K. |/L|
1968 WEINERT, R.A. |/P|
1966 WELLS, E.W. |/G|
1969 WELLS, E.W. |/G|
1964 WHITTINGHAM, H.E. |/W|
1975 WILLSON, M.A. |/X|
1977 WOOLCOCK, A.F. |/R|
1953 WORLD METEOROLOGICAL ORGANIZATION |/R|
1967 YOSHIDA, K.

Section 3 - Classification by Subject

A Accidents & Incidents

1956 RUTHERFORD, G.T.
1959 ROBEY, F.S.
1960 McDONELL, R.
1962 BUREAU OF METEOROLOGY
1962 SPICER, Justice
1968 KEPERT, J.L., & RIDER, C.K.
1969 AUSTRALIAN NEWSPAPER
1969 HERALD NEWSPAPER, MELBOURNE
1973b SHANAHAN, B.W.
1974 ADVERTISER NEWSPAPER, ADELAIDE.
1976 AUSTRALIA - DEPARTMENT OF TRANSPORT
1978 AGE NEWSPAPER, MELBOURNE
1979b AGE NEWSPAPER, MELBOURNE
1979 SUN NEWSPAPER, MELBOURNE

B Agricultural aircraft usage

1961 HOOKE, F.H., PATTERSON, A.K., & PERRY, S.R.
1962 PATTERSON, A.K.
1966 FODEN, P.J.
1966 VISICK, J.
1967 FODEN, P.J.
1967 TRAYFORD, R.S.
1968 PATTERSON, A.K.

C Aircraft measurements of gusts - V-g recorders

1947a HOOKE, F.H.
1948 HOOKE, F.H.
1949 HOOKE, F.H., & FERSTAT, Q.
1951 FERSTAT, Q.
1954 BACON, N.E., & HOOKE, F.H.
1955 BACON, N.E.
1955b HOOKE, F.H.
1956 HOOKE, F.H., & BAUM, Q.

D Aircraft measurements of gusts - V-g-h recorders

1967 HUNTER, P.A.
1967 HUNTER, P.A. & FETNER, M.W.
1971 PECKHAM, C.G.
1976 SPARROW, J.G.
1979 SPARROW, J.G. & THOMSON, M.R.

E Aircraft measurements of gusts - recording counting accelerometers

1953 BAUM, Q., & HOOKE, F.H.
1956 BACON, N.E.
1958 HEATH-SMITH, J.R.
1959 HEATH-SMITH, J.R.
1963 APLIN, J.E.
1965 VISICK, J.
1966 BULLEN, N.I.

1971 KAYNES, I.W.
1971 PECKHAM, C.G.
1972a KAYNES, I.W.
1972b KAYNES, I.W.

F Aircraft measurements of gusts - fatigue meters (including non-recording counting accelerometers)

1953a HOOKE, F.H.
1953b HOOKE, F.H.
1956 BACON, N.E.
1961a BRUCE, G.P., & HOOKE, F.H.
1961b BRUCE, G.P., & HOOKE, F.H.
1961 HIGGS, M.G.J.
1962 PATTERSON, A.K., HIGGS, M.G.J., & HOOKE, F.H.
1962 TAYLOR, R.H.
1967 LABETT, E.T.
1968 BRUCE, G.P.
1969 BILHAM, B.W.
1971 SPILLANE, K.T.
1973 MANN, J.Y.
1975 MANN, J.Y.
1977 JOST, G.S.
1979 JOST, G.S. (Ed.)

G Aircraft measurements of gusts - special investigations

1948 RADOK, U.
1962 BARNARD, J.M.H., & GEE, S.
1963 DALTON-MORGAN, T.F., & RIDER, C.K.
1963 MIZON, E.A.
1965 CROOKS, W.
1966 WELLS, E.W.
1967a CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al
1967b CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al
1967c CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al
1967 SPILLANE, K.T.
1968 TAYLOR, R.J., WARNER, J., & BACON, N.B.
1969 WELLS, E.W.
1971 RIDER, C.K., & THOMSON, M.R.
1971 RIDER, C.K., THOMSON, M.R., & VERINDER, F.E.
1971 SPILLANE, K.T., & RADOK, U.
1972 TAYLOR, R.J.
1974 BARCLAY, P.A.
1981 COLQUHOUN, J.R.

H Aircraft response to gusts

1947 RADOK, J.R.M., & STILES, L.F.
1947a RADOK, J.R.M.
1947b RADOK, J.R.M.
1948 RADOK, J.R.M., & STILES, L.F.
1949a RADOK, J.R.M.
1949b RADOK, J.R.M.
1954 HOOKE, F.H.
1954 RADOK, J.R.M.
1959b PHILLPOT, H.R.

1967 TRAILL-NASH, R.W., CHANDIVERT, M.S.
1973 RIDER, C.K., SPARROW, J.G., THOMSON, M.R., & VERINDER, F.E.
1974 RIDER, C.K., SPARROW, J.G., & THOMSON, M.R.
1974 THOMSON, M.R., & SPARROW, J.G.
1975a SHERMAN, D.J.
1976 HOWARD, P.J.
1976 SHERMAN, D.J.
1977 SPARROW, J.G.

I Bibliographies

1947b HOOKE, F.H.
1957a ROYAL AIRCRAFT ESTABLISHMENT
1957b ROYAL AIRCRAFT ESTABLISHMENT
1960a CREASI, V.J.
1960b CREASI, V.J.
1970 HACIA, H.
1970 VEAZEY, D.R.
1975 MACKERRAS, D. & PRENTICE, S.A.
1979 MINOR, J.E., & PETERSON, R.E.
1980 ALLEN, S.C.
1981 SHERMAN, D.J.

J Clear air turbulence

1952 TREFRY, G.R.
1954 RADOK, U.
1956 RUTHERFORD, G.T.
1960 McDONELL, R.
1961 GEORGE, J.J.
1961 RADOK, U.
1963 DALTON-MORGAN, T.F., & RIDER, C.K.
1963 MIZON, E.A.
1963 REITER, E.R.
1964 SPILLANE, K.T.
1965 BURNS, A., & RIDER, C.K.
1965 CROOKS, W.
1965 REITER, E.R., & BURNS, A.
1965 SPILLANE, K.T.
1966 CLARKE, R.H.
1966 CURNOW, R.
1966 REITER, E.R.
1966 REITER, E.R., & BURNS, A.
1967a CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al
1967b CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al
1967c CROOKS, W.M., HOBLIT, F.M., PROPHET, D.T., et al
1967 REITER, E.R., & FOLTZ, H.P.
1967 RIDER, C.K.
1967 SPILLANE, K.T.
1968 POWELL, F.A.
1969 SPILLANE, K.T.
1970 PLUSS, D.H.
1970 TAYLOR, R.J., WARNER, J., & BACON, N.E.
1970 VEAZEY, D.R.
1971 RIDER, C.K., & THOMSON, M.R.

1971 SPILLANE, K.T., & RADOK, U.
1971 SPILLANE, K.T.
1972 LLOYD, K.H., LOW, C.H., & VINCENT, R.A.
1972 SMITH, E.J.
1973 BURNS, A.
1973a SHANAHAN, B.W.
1973b SHANAHAN, B.W.

K Climatological summaries

1934 METEOROLOGICAL OFFICE. GREAT BRITAIN.
1938 TRELOAR, H.M., & NEWMAN, B.W.
1938 TRELOAR, H.M., NEWMAN, B.W. & NEWELL, H.F.
1942 BUREAU OF METEOROLOGY
1942 RAAF METEOROLOGICAL BRANCH
1942 ROYAL AUSTRALIAN AIR FORCE
1943 AUSTRALIAN METEOROLOGICAL SERVICE
1943 HUDDLESTON, H.F.
1944 RAAF DIRECTORATE OF METEOROLOGICAL SERVICES
1944 TRELOAR, H.M.
1946 METEOROLOGICAL OFFICE. GREAT BRITAIN.
1946 NEWMAN, B.W. & McCANN, A.
1948 HOGAN, J.
1950 BUREAU OF METEOROLOGY
1952 LOEWE, F., & RADOK, U.
1954 KARELSKY, S.
1956 KARELSKY, S.
1957 RADOK, U., & GRANT, A.M.
1958 JEN-HU-CHUNG
1967 PHILLPOT, H.R.
1967a U.S. NAVAL WEATHER SERVICE
1967b U.S. NAVAL WEATHER SERVICE
1968 COMMANDER FAR EAST FLEET
1969 U.S.A.F. WEATHER WING
1971a BUREAU OF METEOROLOGY
1971b BUREAU OF METEOROLOGY
1971 RADOK, U.
1972a BUREAU OF METEOROLOGY
1972b BUREAU OF METEOROLOGY
1972 NEWELL, R.E., et al.
1973 NEAL, A.B.
1973 NOAR, P.F.
1974 KRUZHKOVA, T.S. & NOVOZHILOVA, N.I.
1974 PITTOCK, A.B.
1974 VICTORIAN YEAR BOOK
1976 GRAY, T.I., IRWIN, J.R., KRUEGER, A.F., & VARNADORE, M.S.
1977 De BILT
1977 LINACRE, E. & HOBBS, J.
1977a U.S. NAVAL WEATHER SERVICE
1977b U.S. NAVAL WEATHER SERVICE
1977a U.S. NAVAL WEATHER SERVICE
1977b U.S. NAVAL WEATHER SERVICE
1977c U.S. NAVAL WEATHER SERVICE
1978 GRAY, T.I. & VARNADORE, M.S.
1978 HIRST, A. & LINACRE, E.T.

1978 U.S. NAVAL WEATHER SERVICE
1980 STEINER, J.T.

L Convection

1959 McRAE, J.N., WELLER, G.E., & LEE, D.M.
1968 TAYLOR, R.J., WARNER, J., & BACON, N.B.
1976 STULL, R.B.
1977 WEBB, E.K.
1978 AVIATION SAFETY DIGEST
1978 COULMAN, C.E.
1978 DEPARTMENT OF TRANSPORT, AUSTRALIA

M Fronts (including sea breezes)

1943 HUDDLESTON, H.F.
1949 DESMOND, E., & RADOK, U.
1954 KARELSKY, S.
1956 TROUP, A.J.
1964 KAMIKO, T.
1969 GENTILLI, J.
1970 BERSON, F.A. & LAMOND, M.H.
1972a WARNER, J.
1975 WALKER, D.R.
1976 CHRISTIE, D.R., MUIRHEAD, K.J., & HALES, A.L.
1977 PHYSICK, W.L.

N Gusts - geographic variability

1948 WARREN, H.N.
1965 VISICK, J.
1968 BRUCE, G.P.
1971 SPILLANE, K.T.
1972b WARNER, J.

O Gusts - seasonal variability

1955b HOOKE, F.H.
1961b BRUCE, G.P., & HOOKE, F.H.
1961 HIGGS, M.G.J.
1962 PATTERSON, A.K., HIGGS, M.G.J., & HOOKE, F.H.
1962 TAYLOR, R.H.
1965 VISICK, J.
1968 BRUCE, G.P.
1971 SPILLANE, K.T.

P Jet Stream

1952 GIBBS, W.J.
1958 RADOK, U., & CLARKE, R.H.
1963 MIZON, E.A.
1963 REITER, E.R.
1964 SPILLANE, K.T.
1965 BURNS, A., & RIDER, C.K.
1965 SPILLANE, K.T.
1966 CLARKE, R.H.
1967 SPILLANE, K.T.
1968 WEINERT, R.A.
1971 RADOK, U.
1971 RAMANO, D.

1976 GRAY, T.I., IRWIN, J.R., KRUEGER, A.F., & VARNADORE, M.S.
1981 BROOK, R.R.

Q Monsoons
1972 FALLS, R.
1976 MENON, K. N.
1979 CADET, D.

R Thunderstorms (incl. thunderstorm gust fronts)
1949c RADOK, U.
1953 WORLD METEOROLOGICAL ORGANIZATION
1960 ASHTON, H.T.
1962 CLARKE, R.H.
1962 GOODMAN, G.S., BATH, A.T., & McRAE, J.N.
1969 AGE NEWSPAPER, MELBOURNE
1969 AUSTRALIAN NEWSPAPER
1969 BERSON, F.A.
1970 BERSON, F.A. & LAMOND, M.H.
1971 BERSON, F.A.
1972 BIRCH, R.L.
1973 BURNS, A.
1973 MACNICOL, B., & THOMSON, M.R.
1974 BARCLAY, P.A.
1974 VICTORIAN YEAR BOOK
1975 AGE NEWSPAPER, MELBOURNE
1975a COLQUHOUN, J.R.
1975b COLQUHOUN, J.R.
1975 MACKERRAS, D. & PRENTICE, S.A.
1975 ROYAL AUSTRALIAN AIR FORCE
1976b GOMES, L. & VICKERY, B.J.
1977 DEL BEATO, R.
1977 FREEMAN, W. B. Jr
1977 WOOLCOCK, A.F.
1978 AGE NEWSPAPER, MELBOURNE
1978 BARCLAY, P.A.
1978 MEIGHEN, P.J., SHERMAN, D.J., & THOMSON, M.R.
1979a AGE NEWSPAPER, MELBOURNE
1979b AGE NEWSPAPER, MELBOURNE
1980 RIDER, C.K., SHERMAN, D.J., & THOMSON, M.R.
1980 RUMING, R.H.

S Tornados
1962 CLARKE, R.H.
1970 FUJITA, T. T.
1972 FUJITA, T. T.
1974 VICTORIAN YEAR BOOK
1975 AGE NEWSPAPER, MELBOURNE
1976 MELARAGNO, M.G.
1977 HINDLEY, K.
1977 SMITH, R.K., MANSBRIDGE, J.V., & LESLIE, L.M.
1978 AGE NEWSPAPER, MELBOURNE
1978 AVIATION SAFETY DIGEST
1978 DEPARTMENT OF TRANSPORT, AUSTRALIA
1978 SMITH, R.K., & LESLIE, L.M.

1978 SMITH, R.K.
1979a AGE NEWSPAPER, MELBOURNE
1979b AGE NEWSPAPER, MELBOURNE
1979 MINOR, J.E., & PETERSON, R.E.
1980 ALLEN, S.C.
1980 BATES, F.C.
1980 SMITH, R.K.

T Tropical Cyclones

1949 NEDERLANDS MEREOTOLOGISCH INSTITUUT
1954 KARELSKY, S.
1956 BUREAU OF METEOROLOGY
1956 KARELSKY, S.
1965 BUREAU OF METEOROLOGY
1968a BUREAU OF METEOROLOGY
1968b BUREAU OF METEOROLOGY
1972 COLEMAN, F.
1975 BUREAU OF METEOROLOGY
1975 DeANGELIS, D.
1975 PADYA, B.M.
1975 SERVICE DE LA METEOROLOGIE
1976a GOMES, L. & VICKERY, B.J.
1976c GOMES, L. & VICKERY, B.J.
1976 SPILLANE, K.T., & DEXTER, P.E.
1979 INTERNATIONAL CONFERENCE ON TROPICAL CYCLONES

U Turbulence parameterisation

1965 REITER, E.R., & BURNS, A.
1967 RIDER, C.K.
1970 TAYLOR, R.J., WARNER, J., & BACON, N.E.
1971 RIDER, C.K., THOMSON, M.R., & VERINDER, F.E.
1972 TAYLOR, R.J.
1979 THOMSON, M.R.

V Waves (incl. mountain lee waves)

1949 DESMOND, E., & RADOK, U.
1950 RADOK, U.
1952 REID, D.G.
1952 TREFRY, G.R.
1953 RADOK, U.
1954 RADOK, U.
1954 RADOK, U.
1956 RADOK, U.
1963 MIZON, E.A.
1963 REITER, E.R.
1964 SPILLANE, K.T.
1965 BURNS, A., & RIDER, C.K.
1967 REITER, E.R., & FOLTZ, H.P.
1970 PLUSS, D.H.
1970 WALLINGTON, C.E.
1972 LLOYD, K.H., LOW, C.H., & VINCENT, R.A.
1972 SMITH, E.J.
1973 LLOYD, K.H., LOW, C.H., & VINCENT, R.A.
1974 SHERMAN, D.J.

1975 GRIMSHAW, R.H.J.
1976 BAINES, P.G.
1976 CHRISTIE, D.R., MUIRHEAD, K.J., & HALES, A.L.
1978 CHRISTIE, D.R., MUIRHEAD, K.J., & HALES, A.L.
1981 COLQUHOUN, J.R.

W Wind measurements - ground level (incl. tower measurements)

1948 WARREN, H.N.
1949 NEDERLANDS MEREOTOLOGISCH INSTITUUT
1955 DEACON, E.L.
1964 WHITTINGHAM, H.E.
1965 ROMANOV, I.A.
1967 DEACON, E.L. & STEVENSON, J.
1968 BROOK, R.R., & SPILLANE, K.T.
1968 SPILLANE, K.T., & BROOK, R.R.
1968 SWINBANK, W.C. & DYER, A.J.
1970 BROOK, R.R.
1970 BROOKFIELD, M.
1972 BLACKMAN, D.R.
1973 BROOK, R.R.
1973 HESS, G.D., & CLARKE, R.H.
1974 BROOK, R.R.
1976d GOMES, L. & VICKERY, B.J.
1976 HICKS, B.B.
1977 GARRATT, J.R.
1979 THOMSON, M.R.
1980 RIDER, C.K., SHERMAN, D.J., & THOMSON, M.R.
1981 COLQUHOUN, J.R.

X Wind measurements - upper air

1940 LOEWE, F.
1944 TRELOAR, H.M.
1945 LOEWE, F.
1946 RADOK, U.
1952 LOEWE, F., & RADOK, U.
1952 PHILLPOT, H.R., & REID, D.G.
1953 PHILLPOT, H.R., & REID, D.G.
1956 TROUP, A.J.
1957 RADOK, U., & GRANT, A.M.
1958 BUREAU OF METEOROLOGY
1959a PHILLPOT, H.R.
1961 GIBBS, W.J. & HOUNSELL, W.K.
1961 PHILLPOT, H.R.
1964 MAHER, J.V., & McRAE, J.N.
1966 CLARKE, R.H.
1966 MAHER, J.V., & McRAE, J.N.
1966 ROFE, B.
1970 McRAE, J.N.
1971 McRAE, J.N.
1972 ABBEY, R.F., Jr.
1972 LABY, J.E., & UNTHANK, E.L.
1972 NEWELL, R.E., et al.
1973 HEALY, T.R.

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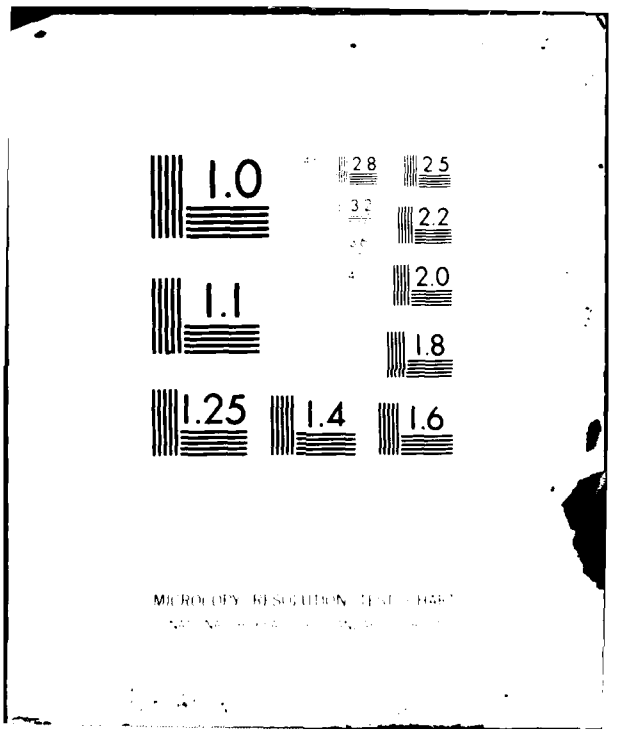
1.0
2.8
2.5
3.2
2.2
1.1
2.0
1.8
1.25
1.4
1.6

1974 LABY, J.E., & UNTHANK, E.L.
1975 SEAMAN, R.S.
1975 SEAMAN, R.S., & DRAUDINS, I.M.
1975 WILLSON, M.A.
1976d GOMES, L. & VICKERY, B.J.
1976 GRAY, T.I., IRWIN, J.R., KRUEGER, A.F., & VARNADORE, M.S.
1977 GARRATT, J.R.
1977 MAHER, J.V., & LEE, D.M.

Y Wind shear & terrain effects

1966 CUMMING, R.W., LENNOX, D., & MELBOURNE, W.H.
1968 BROOK, R.R., & SPILLANE, K.T.
1968 SPILLANE, K.T., & BROOK, R.R.
1970 BROOK, R.R.
1978 ANDERSON, K.W., & CLARK, B.A.J.

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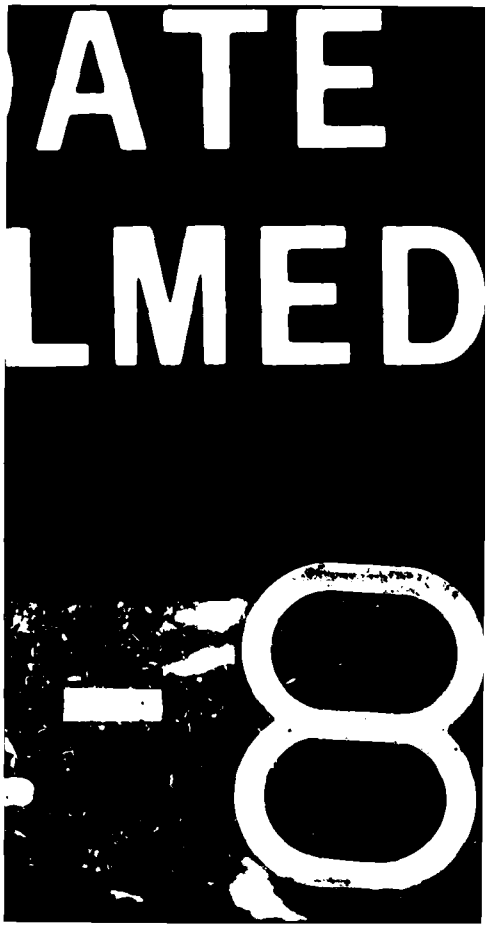
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